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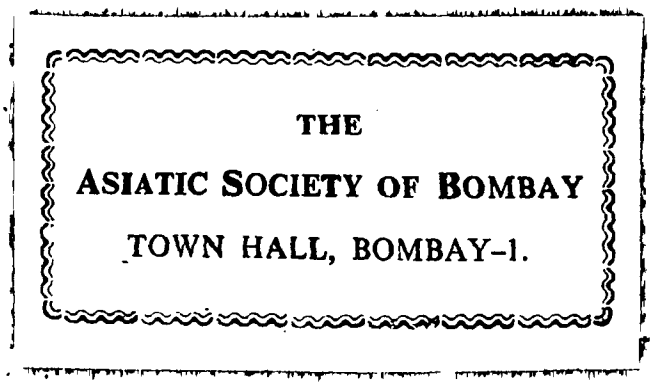

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Royal Commission on Agriculture in India.

VOLUME II.—PART II.

Evidence taken in the Bombay Presidency.

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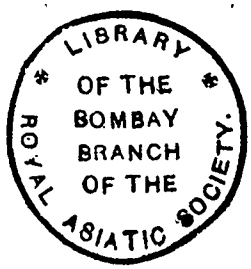

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TERMS OF REFERENCE

Generally,

To examine and report on the present conditions of agriculture and rural economy in British India and to make recommendations for the improvement of agriculture and the promotion of the welfare and prosperity of the rural population ;

In particular to investigate—

(*a*) the measures now being taken for the promotion of agricultural and veterinary research, experiment, demonstration and education, for the compilation of agricultural statistics, for the introduction of new and better crops and for improvement in agricultural practice, dairy farming and the breeding of stock ;

(*b*) the existing methods of transport and marketing of agricultural produce and stock ;

(*c*) the methods by which agricultural operations are financed and credit afforded to agriculturists ;

(*d*) the main factors affecting rural prosperity and the welfare of the agricultural population ;

and to make recommendations.

It will not be within the scope of the Commission's duties to make recommendations regarding the existing system of landownership and tenancy or of the assessment of land revenue and irrigation charges, or the existing division of functions between the Government of India and the local Governments. But the Commission shall be at liberty to suggest means whereby the activities of the Governments in India may best be co-ordinated and to indicate directions in which the Government of India may usefully supplement the activities of local Governments.

QUESTIONNAIRE

Part I

Question.

1. Research.
2. Agricultural education.
3. Demonstration and propaganda.
4. Administration.
5. Finance.
6. Agricultural indebtedness.
7. Fragmentation of holdings.

Part II

8. Irrigation.
9. Soils.
10. Fertilisers.
11. Crops.
12. Cultivation.
13. Crop protection.
14. Implements.

Part III

15. Veterinary.
16. Animal husbandry.

Part IV

17. Agricultural industries.
18. Agricultural labour.
19. Forests.
20. Marketing.
21. Tariffs and sea freights.
22. Co-operation.
23. General education.
24. Attracting capital.
25. Welfare of rural population.
26. Statistics.

QUESTIONNAIRE

Part I

1. Research.

(*a*) Have you suggestions to advance for the better organisation, administration and financing of—

(*i*) All research affecting the welfare of the agriculturist, including research into the scientific value of the indigenous theory and traditional methods of agriculture,

(*ii*) Veterinary research ?

(*b*) If in cases known to you progress is not being made because of the want of skilled workers, or field or laboratory facilities for study or by reason of any other handicaps, please give particulars. [Suggestions of a general kind should be made under (*a*) ; answers under this heading should relate to specific subjects. The purpose is to secure a list of the problems met with by scientific investigators in the course of their work which are being held over because of lack of resources or deficient organisation.]

(*c*) Can you suggest any particular subject for research not at present being investigated to which attention might usefully be turned ?

2. Agricultural Education.

With reference to any form of agricultural education of which you may have experience, please state your views on the following :—

(*i*) Is the supply of teachers and institutions sufficient ?

(*ii*) Is there an urgent need for extension of teaching facilities in any district or districts known to you personally ?

(*iii*) Should teachers in rural areas be drawn from the agricultural classes ?

(*iv*) Are the attendances at existing institutions as numerous as you would expect in present circumstances ; if not, state reasons. Can you suggest measures likely to stimulate the demand for instruction ?

(*v*) What are the main incentives which induce lads to study agriculture ?

(*vi*) Are pupils mainly drawn from the agricultural classes ?

(*vii*) Are there any modifications in existing courses of study which appear to be called for ; if so, what are they ?

(*viii*) What are your views upon (*a*) nature study ; (*b*) school plots ; (*c*) school farms ?

(*ix*) What are the careers of the majority of students who have studied agriculture ?

(*x*) How can agriculture be made attractive to middle class youths ?

(*xi*) Are there recent movements for improving the technical knowledge of students who have studied agriculture ?

(*xii*) How can adult education in rural tracts be popularised ?

(*xiii*) In suggesting any scheme for better educational facilities in rural areas, please give your views for (*a*) its administration and (*b*) its finance.

3. Demonstration and Propaganda.

(*a*) What are the measures which in your view have been successful in influencing and improving the practice of cultivators ?

(*b*) Can you make suggestions for increasing the effectiveness of field demonstrations ?

(*c*) Can you suggest methods whereby cultivators may be induced to adopt expert advice ?

(*d*) If you are aware of any striking instances of the success or the failure of demonstration and propaganda work, please give particulars and indicate the reasons for success or for failure.

4. Administration.

(*a*) Do you wish to suggest means towards the better co-ordination of the activities of the Governments in India or to indicate directions in which the Government of India may usefully supplement the activities of the local Governments ?

(*b*) Is it your opinion that the expert scientific knowledge required in the development of agriculture in the different Provinces could be supplied to a greater extent than is the case at present by increasing the scientific staff of the Government of India ? If so, indicate the types of work which would benefit by pooling the services of experts, and suggest how that work should be controlled.

(*c*) Are you satisfied from the agricultural standpoint with the services afforded by—

(*i*) The Agricultural and Veterinary Services,

(*ii*) Railways and steamers,

(*iii*) Roads,

(*iv*) Meteorological Department,

(*v*) Posts, and

(*vi*) Telegraphs, including wireless ?

If not, please indicate directions in which you think these Services might be improved or extended.

5. Finance.

(*a*) What are your views as to the steps that should be taken for the better financing of agricultural operations and for the provision of short and long-term credit to cultivators ?

(*b*) Do you wish to suggest means whereby cultivators may be induced to make fuller use of the Government system of *taccavi* ?

6. Agricultural Indebtedness.

(*a*) What in your opinion are :—

(*i*) the main causes of borrowing,

(*ii*) the sources of credit, and

(*iii*) the reasons preventing repayment.

(*b*) What measures in your opinion are necessary for lightening agriculture's burden of debt ? For example, should special measures be taken to deal with rural insolvency, to enforce the application of the Usurious Loans Act, or to facilitate the redemption of mortgages ?

(*c*) Should measures be taken to restrict or control the credit of cultivators such as limiting the right of mortgage and sale ? Should non-terminable mortgages be prohibited ?

7. Fragmentation of Holdings.

(*a*) Do you wish to suggest means for reducing the loss in agricultural efficiency attendant upon the excessive subdivision of holdings ?

(*b*) What are the obstacles in the way of consolidation and how can they be overcome ?

(*c*) Do you consider legislation to be necessary to deal with minors, widows with life interest, persons legally incapable, alienation and dissentients, and to keep disputes out of the courts ?

PART II

8. Irrigation.

(*a*) Name any district or districts in which you advocate the adoption of new irrigation schemes, or suggest extensions or improvements in the existing systems or methods of irrigation by—

(*i*) Perennial and non-perennial canals,
(*ii*) Tanks and ponds,
(*iii*) Wells.

What are the obstacles in your district or Province to the extension of irrigation by each of the above methods ?

(*b*) Are you satisfied with the existing methods of distributing canal water to cultivators ? Describe the methods that have been employed to prevent wastage of water by evaporation and by absorption in the soil. What form of outlet for distribution to cultivators at the tail end do you regard as the most equitable and economical ? Have these methods and devices been successful, or do you wish to suggest improvements ?

(*N.B.*—Irrigation charges are *not* within the terms of reference of the Commission, and should not be commented upon.)

9. Soils.

(*a*) Have you suggestions to make—

(*i*) for the improvement of soils, whether by drainage or other means, not dealt with under other headings in this questionnaire.
(*ii*) for the reclamation of Alkali (Usar) or other uncultivable land,
(*iii*) for the prevention of the erosion of the surface soil by flood water ?

(*b*) Can you give instances of soils known to you which, within your recollection, have—

(*i*) undergone marked improvement,
(*ii*) suffered marked deterioration ?

If so, please give full particulars.

(*c*) What measures should Government take to encourage the reclamation of areas of cultivable land which have gone out of cultivation ?

10. Fertilisers.

(*a*) In your opinion, could greater use be profitably made of natural manures or artificial fertilisers ? If so, please indicate the directions in which you think improvement possible.

(*b*) Can you suggest measures to prevent the fraudulent adulteration of fertilisers ?

(*c*) What methods would you employ to popularise new and improved fertilisers ?

(*d*) Mention any localities known to you in which a considerable increase in the use of manures has recently taken place.

(*e*) Has effect of manuring with phosphates, nitrates, sulphate of ammonia, and potash manures been sufficiently investigated ? If so, what is the result of such investigation ?

(*f*) What methods would you employ to discourage the practice of using cowdung as fuel ?

11. Crops.

(*a*) Please give your views on—

(*i*) the improvement of existing crops,

(*ii*) the introduction of new crops including fodder crops,

(*iii*) the distribution of seeds,

(*iv*) the prevention of damage by wild animals.

(*b*) Can you suggest any heavy yielding food crops in replacement of the present crops ?

(*c*) Any successful efforts in improving crops or substituting more profitable crops which have come under your own observation should be mentioned.

12. Cultivation.

Can you suggest improvements in—

(*i*) the existing system of tillage, or

(*ii*) the customary rotations or mixtures of the more important crops ?

13. Crop Protection, Internal and External.

Please give your views on—

(*i*) The efficacy and sufficiency of existing measures for protection of crops from external infection, pests and diseases.

(*ii*) The desirability of adopting internal measures against infection.

14. Implements.

(*a*) Have you any suggestion for the improvement of existing, or the introduction of new, agricultural implements and machinery ?

(*b*) What steps do you think may usefully be taken to hasten the adoption by the cultivator of improved implements ?

(*c*) Are there any difficulties which manufacturers have to contend with in the production of agricultural implements or their distribution for sale throughout the country ? If so, can you suggest means by which these difficulties may be removed ?

PART III

15. Veterinary.

(*a*) Should the Civil Veterinary Department be under the Director of Agriculture or should it be independent ?

(*b*) (*i*) Are dispensaries under the control of Local (District) Boards ? Does this system work well ?

(*ii*) Is the need for expansion being adequately met ?

(*iii*) Would you advocate the transfer of control to Provincial authority ?

(*c*) (*i*) Do agriculturists make full use of the veterinary dispensaries ? If not, can you suggest improvements to remedy this ?

(*ii*) Is full use made of touring dispensaries ?

(*d*) What are the obstacles met with in dealing with contagious diseases ? Do you advocate legislation dealing with notification, segregation, disposal of diseased carcases, compulsory inoculation of contacts and prohibition of the movement of animals exposed to infection ? Failing legislation, can you suggest other means of improving existing conditions ?

(*e*) Is there any difficulty in securing sufficient serum to meet the demand ?

(*f*) What are the obstacles in the way of popularising preventive inoculation ? Is any fee charged, and, if so, does this act as a deterrent ?

(*g*) Do you consider that the provision of further facilities for research into animal disease is desirable ?

If so, do you advocate that such further facilities should take the form of—

(*i*) an extension of the Muktesar Institute, or

(*ii*) the setting up, or extension of, Provincial Veterinary Research Institutions ?

(*h*) Do you recommend that special investigations should be conducted by—

(*i*) officers of the Muktesar Institute, or

(*ii*) research officers in the Provinces ?

(*i*) Do you recommend the appointment of a Superior Veterinary Officer with the Government of India ? What advantages do you expect would result from such an appointment ?

16. Animal Husbandry.

(*a*) Do you wish to make suggestions for—

(*i*) improving the breeds of livestock,

(*ii*) the betterment of the dairying industry,

(*iii*) improving existing practice in animal husbandry ?

(*b*) Comment on the following as causes of injury to cattle in your district—

(*i*) Overstocking of common pastures,

(*ii*) Absence of enclosed pastures, such as grass borders in tilled fields,

(*iii*) Insufficiency of dry fodder such as the straw of cereals or the stems and leaves of pulses,

(*iv*) Absence of green fodders in dry seasons,

(*v*) Absence of mineral constituents in fodder and feeding stuffs.

(*c*) Please mention the months of the year in which fodder shortage is most marked in your district. For how many weeks does scarcity of fodder usually exist ? After this period of scarcity ends how many weeks elapse before young growing cattle begin to thrive ?

(*d*) Can you suggest any practicable methods of improving or supplementing the fodder supply that would be applicable to your district ?

(*e*) How can landowners be induced to take a keener practical interest in these matters ?

Part IV

17. Agricultural Industries.

(*a*) Can you give any estimate of the number of days of work done by an average cultivator on his holding during the year ? What does he do in the slack season ?

(*b*) Can you suggest means for encouraging the adoption of subsidiary industries ? Can you suggest any new subsidiary industries to occupy the spare time of the family which could be established with Government aid ?

(*c*) What are the obstacles in the way of expansion of such industries as beekeeping, poultry rearing, fruit growing, sericulture, pisciculture, lac culture, rope making, basket making, etc. ?

(*d*) Do you think that Government should do more to establish industries connected with the preparation of agricultural produce for consumption, such as oil pressing, sugar making, cotton ginning, rice hulling, utilisation of wheat straw for card-board, utilisation of cotton seed for felt, fodder, oil and fuel, utilisation of rice straw for paper, etc. ?

(*e*) Could subsidiary employment be found by encouraging industrial concerns to move to rural areas ? Can you suggest methods ?

(*f*) Do you recommend a more intensive study of each rural industry in its technical, commercial and financial aspects, with a view to, among other things, introduction of improved tools and appliances ?

(*g*) Can you suggest any other measures which might lead to greater rural employment ?

(*h*) Can you suggest means whereby the people could be induced to devote their spare time to improving the health conditions of their own environment ?

18. Agricultural Labour.

(*a*) What measures, if any, should be taken to attract agricultural labour from areas in which there is a surplus to—

(*i*) areas under cultivation in which there is a shortage of such labour ? and

(*ii*) areas in which large tracts of cultivable land remain uncultivated ?

Please distinguish between suggestions designed to relieve seasonal unemployment and proposals for the permanent migration of agricultural population.

(*b*) If there is any shortage of agricultural labour in your Province, what are the causes thereof and how could they be removed ?

(*c*) Can you suggest measures designed to facilitate the occupation and development, by surplus agricultural labour, of areas not at present under cultivation ?

19. Forests.

(*a*) Do you consider that forest lands as such are at present being put to their fullest use for agricultural purposes ? For instance, are grazing facilities granted to the extent compatible with the proper preservation of forest areas ? If not, state the changes or developments in current practice which you consider advisable.

(*b*) Can you suggest means whereby the supply of firewood and fodder in rural areas may be increased ?

(*c*) Has deterioration of forests led to soil erosion ? What remedies would you suggest for erosion and damage from floods ?

(*d*) Can you indicate any methods by which supply of moisture in the soil, the rainfall and supply of canal water can be increased and regulated by afforestation or by the increased protection of forests so as to benefit agriculture ? Would the same methods be useful in preventing the destruction by erosion of agricultural land ?

(*e*) Is there an opening for schemes of afforestation in the neighbourhood of villages ?

(*f*) Are forests suffering deterioration from excessive grazing ? Is soil erosion being thereby facilitated ? Suggest remedies.

20. Marketing.

(*a*) Do you consider existing market facilities to be satisfactory ? Please specify and criticise the markets to which you refer, and make suggestions for their improvement.

(*b*) Are you satisfied with the existing system of marketing and distribution ? If not, please indicate the produce to which you refer and describe and criticise in detail the channels of marketing and distribution from the producer to the consumer in India (or exporter in the case of produce exported overseas). State the services rendered by each intermediary and whether such intermediary acts in the capacity of merchant or commission agent, and comment upon the efficiency of these services and the margins upon which such intermediaries operate. Please describe

the method by which each transaction is financed, or in the case of barter, by which an exchange is effected.

(*c*) Do you wish to suggest steps whereby the quality, purity, grading or packing of agricultural produce may be improved, distinguishing where possible between produce destined for—

(*i*) Indian markets ?

(*ii*) Export markets ?

(*d*) Do you think that more effective steps might be taken to place at the disposal of cultivators, merchants and traders information as to market conditions, whether Indian or overseas ; crop returns ; complaints as to Indian produce from wheresoever originating ; and agricultural and marketing news in general ?

21. Tariffs and Sea Freights.

Do existing (*a*) customs duties, both import and export, and (*b*) sea freights adversely affect the prosperity of the Indian cultivator ? If so, have you any recommendations to make ?

22. Co-operation.

(*a*) What steps do you think should be taken to encourage the growth of the co-operative movement—

(*i*) by Government,

(*ii*) by non-official agencies ?

(*b*) Have you any observations to make upon—

(*i*) Credit societies ;

(*ii*) Purchase societies ;

(*iii*) Societies formed for the sale of produce or stock ;

(*iv*) Societies for effecting improvements—*e.g.*, the digging of wells and the construction of bunds, walls and fences, or the planting of hedges ;

(*v*) Societies formed for the aggregation of fragmented holdings and their redistribution in plots of reasonable size ;

(*vi*) Societies for the co-operative use of agricultural machinery ;

(*vii*) Societies for joint farming ;

(*viii*) Cattle breeding societies ;

(*ix*) Societies formed for any purpose connected with agriculture or with the betterment of village life, but not specified above ?

(*c*) Where co-operative schemes for joint improvement, such as co-operative irrigation or co-operative fencing or a co-operative consolidation of holdings scheme, cannot be given effect to owing to the unwillingness of a small minority to join, do you think legislation should be introduced in order to compel such persons to join for the common benefit of all ?

(*d*) Do you consider that those societies of which you have personal knowledge have, in the main, achieved their object ?

23. General Education.

(*a*) Do you wish to make observations upon existing systems of education in their bearing upon the agricultural efficiency of the people ? If you make suggestions, please distinguish, as far as possible, between—

(*i*) Higher or collegiate,

(*ii*) Middle school, and

(*iii*) Elementary school education.

(*b*) (*i*) Can you suggest any methods whereby rural education may improve the ability and culture of agriculturists of all grades while retaining their interest in the land ?

(*ii*) What is your experience of compulsory education in rural areas ?

(*iii*) What is the explanation of the small proportion of boys in rural primary schools who pass through the fourth class ?

24. Attracting Capital.

(*a*) What steps are necessary in order to induce a larger number of men of capital and enterprise to take to agriculture ?

(*b*) What are the factors tending to discourage owners of agricultural land from carrying out improvements ?

25. Welfare of Rural Population.

(*a*) Outside the subjects enumerated above, have you any suggestions to offer for improving hygiene in rural areas and for the promotion of the general well-being and prosperity of the rural population ?

(*b*) Are you, for instance, in favour of Government conducting economic surveys in typical villages with a view to ascertaining the economic position of the cultivators ? If so, what, in your opinion, should be the scope and methods of such enquiries ?

(*c*) If you have carried out anything in the nature of such intensive enquiry, please state the broad conclusions which you reached.

26. Statistics.

(*a*) Do you wish to make suggestions for the extension or improvement of the existing methods of—

(*i*) ascertaining areas under cultivation and crops ;

(*ii*) estimating the yield of agricultural produce ;

(*iii*) enumerating livestock and implements ;

(*iv*) collecting information on land tenure, the incidence of land revenue and the size of the agricultural population ;

(*v*) arranging and publishing agricultural statistics ?

(*b*) Have you any other suggestions to make under this heading ?

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON AGRICULTURE.

Friday, March 25th, 1927.

BOMBAY.

PRESENT :

THE MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir HENRY STAVELEY LAWRENCE, K.C.S.I., I.C.S.

Sir JAMES MACKENNA, Kt., C.I.E., I.C.S.

Mr. H. CALVERT, C.I.E., I.C.S.

Raja SRI KRISHNA CHANDRA GAJAPATI NARAYANA DEO OF PARLAKIMEDI.

Professor N. GANGULEE.

Dr. L. K. HYDER.

Mr. B. S. KAMAT.

The Hon'ble Sir CHUNILAL V. MEHTA, Dewan Bahadur A. U. MALJI } *Co-opted Members.*

Mr. J. A. MADAN, I.C.S., Mr. F. W. H. SMITH } *Joint Secretaries.*

THE INDIAN CENTRAL COTTON COMMITTEE.

Replies to the questionnaire.

QUESTION 1.—RESEARCH AND QUESTION 4.—ADMINISTRATION.—The Committee invite attention to the memorandum below on the history and work of the Indian Central Cotton Committee which was furnished in May, 1926. This memorandum outlines their own organisation for research, the reasons which led to it and the results achieved. The Committee, as a body, do not desire to go beyond this as many of their members have already submitted opinions on these questions in other capacities.

Memorandum on the History and Work of the Indian Central Cotton Committee.

(By Mr. B. C. Burt, Secretary, Indian Central Cotton Committee.)

In September, 1917, a touring Committee, the Indian Cotton Committee, was appointed by the Governor-General-in-Council under Resolution No. 933-263 of September 27th, 1917, Department of Revenue and Agriculture. This Committee completed its tour in March, 1918, and issued a report shortly afterwards in which the whole position of the Indian cotton growing industry was very thoroughly reviewed. The work of the Agricultural Departments in all cotton-growing Provinces was examined and commented on, specific recommendations made for the improvement of cotton-trade and cotton-market organisation and for the prevention of abuses, the weaknesses in the existing supply of cotton statistics were pointed out and a well-thought-out scheme for placing Indian cotton-growing on a more

satisfactory basis was prepared. Of the Committee's conclusions we are concerned at the moment more particularly with two, *viz.*, the recommendation for the establishment of a permanent Central Cotton Committee and the recommendation that the staff of the Agricultural Departments in the various cotton growing Provinces should be greatly increased and more adequate provision made for research and experiment, the necessary finance being provided, if necessary, by means of a cotton cess.

2. Paragraphs 259 and 261 of Chapter XIX of the Indian Cotton Committee's report state the reasons which led them to advise the constitution of the Central Cotton Committee. Briefly the object was to provide for a permanent central body, representative of both the cotton trade and the Agricultural Departments, which would permit of the co-ordination of work, bring the cotton trade and industry in closer touch with those engaged on the improvement of cotton growing and which would advise the Government of India and Local Governments.

The report of the Committee was considered by the Board of Agriculture in India in 1919 who endorsed its principal recommendations and emphasised the necessity for a properly equipped Technological Laboratory in Bombay.

3. Very great development in Indian cotton growing has taken place since the Indian Cotton Committee reported. The annual production has gone up from 5 million bales to 6 million, average yields have been improved, the production of cotton of medium staple (as distinct from short staple) has increased by about a million bales per annum and the efforts of the Agricultural Departments have added about half-a-million bales of cotton of approximately one-inch staple to the Indian crop. Nevertheless this report still remains a most important and authoritative survey of Indian cotton growing and the Central Cotton Committee is still engaged in finding means for giving effect to many of the Indian Cotton Committee's detailed recommendations; others with certain modifications have been accepted already by Provincial Governments.

4. The Central Cotton Committee was appointed by Resolution No. 404-22, dated the 31st of March, 1921, of the Government of India, Department of Revenue and Agriculture. Its membership was somewhat larger than first contemplated and it was originally appointed as an advisory Committee. In the interim an important change had taken place in the relation between the Government of India and the Provincial Agricultural Departments since under the reformed constitution agriculture became a "Transferred Subject" in the Provinces. In particular it was found that the new arrangements for central and provincial finance made impracticable a cotton cess on the lines originally proposed.

5. The Central Cotton Committee at its first meeting in July, 1921, reviewed the progress which had been made in giving effect to the recommendations of the Indian Cotton Committee for the strengthening of Agricultural Departments and additional provision for research, and found that whilst (with certain modifications) the recommendations of that Committee in regard to the strengthening of the staff of Deputy Directors of Agriculture were being adopted, provision for cotton research was still quite inadequate. The Central Cotton Committee also came to the conclusion that as a purely advisory body without power to give effect to any of its decisions or to initiate work its possibilities of usefulness would be limited. It therefore advised Government that the question of a cotton cess, to provide funds for research for the improvement of cotton-growing and for the activities of the Committee, be re-examined, and recommended that the funds raised by such a cess be controlled by the Committee. The Committee put forward at the same time a programme of research work including a properly equipped Technological Laboratory at Bombay, a central agricultural station for cotton research

(which they believed could be best provided by a subsidy to the proposed Institute of Plant Industry at Indore which has since been established) and grants to Provincial Departments of Agriculture for the employment of special staff with the necessary equipment on certain specific cotton problems.

6. This recommendation was accepted and given effect to by the Indian Cotton Cess Act of 1923. The Committee which had already been enlarged by the addition of direct representatives of cotton growers was still further enlarged by increasing the growers' representation and was permanently incorporated by the Act. The funds raised by the cotton cess pass direct to the Committee and are expended by them subject to the general control by the Government of India as provided by the Act and Statutory Rules. The Committee's recommendation was that the cotton cess should be levied at the rate of 4 annas per bale on all cotton used in mills in British India or exported from India; this was expected to bring in an income of Rs.9 to 10 lakhs per annum. The Act sanctioned a cess of 4 annas per bale for the first three years and 2 annas per bale thereafter, i.e., from March 16th, 1926. Due to a steady increase in the area under cotton cultivation and a satisfactory export trade the cess has actually realised in the three years a sum of over 40 lakhs of rupees. The reduction of the *permanent* income from the cess necessitated a restriction in the Committee's recurring commitments and as time was required to bring the various research projects into effect, the Committee in the meantime accumulated a reserve of approximately Rs.23 lakhs. Allowing for interest on investments the Committee's future income may be taken at, say, Rs.6½ lakhs per annum, whilst on its present research programme its annual expenditure is about Rs.7½ lakhs per annum.

7. The constitution of the Committee is defined in the Act (Indian Cotton Cess Act and Rules) and it is sufficient to say here that the additional members appointed under Section 4.(xi) include representatives of the Mysore and Indore States, a representative of the Agricultural Department in Sind and additional representatives of the Agricultural Departments in Madras and the Central Provinces. Classified according to the sections of the Industry which members represent the composition is as follows:—

Appointed by the Government of India	3	(1) The President. (2) The Director General of Commercial Intelligence and (3) Representative of Co-operative banking.
Agricultural Officers	9	
Cotton Merchants and Ginners ...	7	
Cotton Spinners	6	
Cotton Growers' representatives ...	11	
Representatives of Indian States ...	6	

It will thus be seen that the Committee is fully representative of all sections of the cotton industry. The Secretary and Deputy Secretary ar both officers of the Indian Agricultural Service.

8. *The work of the Committee.*—The work of the Central Cotton Committee can conveniently be grouped under four headings . (1) The improvement of cotton marketing and the prevention of malpractices both by legislative measures and by constructive action. (2) Work as an advisory Committee in respect of the policy to be followed in regard to the development of cotton growing in the various Provinces and in regard to the broad lines of policy of the various Agricultural Departments. (3) The

supply of information both to the trade and to Agricultural Departments. (4) Agricultural and technological research.

It may be stated at once that the Committee has definitely excluded from its operations many matters which fall entirely within the normal scope of Provincial Agricultural Departments. Hence on the administrative side it does not touch such questions as seed distribution, although it advises on the policy to be followed, and it has omitted from its research programme many problems which, though they have a very definite bearing on cotton growing, are primarily questions of general agriculture.

9. Broadly speaking, the Central Cotton Committee is a central body charged with the promotion of all measures which will tend to further the improvement of the cotton growing industry in India. Its representative character specially qualifies it to advise Central and Provincial Governments in all matters concerning the industry and it affords a common ground on which all sections of the cotton industry—purchasers, traders, manufacturers, cotton growers and agricultural experts—can meet, discuss their difficulties and take joint action to promote the welfare of cotton-growing. The Committee's various activities are closely interdependent, since the successful introduction of a superior cotton into cultivation depends on a suitable market organisation being forthcoming and the latter in turn may depend on the checking of malpractices. Experience has shown that when the improvement of a staple crop, which is largely used by a leading Indian industry and which is also an important export crop, is being attempted there is every advantage in associating representatives of the commercial community with discussions on such work. By such association agricultural investigators may be enabled to avoid unprofitable lines whilst the commercial community, on the other hand, through a better understanding of the objects which the Agricultural Departments have in view can often render assistance which otherwise would not be forthcoming. It may be said that the success which has been achieved by the Central Cotton Committe has been due to a sustained effort in which the commercial community, the growers and the Agricultural Departments have all taken part. The position of an advisory Committee is occasionally an invidious one, and there is little doubt that the fact that the Central Cotton Committee is itself engaged on constructive work has been partly responsible for the freedom with which the various Governments have consulted it on matters of cotton policy and for the reception given to the Committee's recommendations in those instances where it has taken the initiative.

10. Technological Research has been provided for under the direct control of the Committee and the Technological Laboratory is situated in Bombay. Agricultural Research is provided for through the medium of research grants. The Institute of Plant Industry, Indore, is practically a central research institute for cotton problems, and indeed depends mainly on the Committee's grants. The research grants to provincial Departments of Agriculture are given for specific investigations; these are referred to in detail in a later section.

11. One further point in connection with the Committee's organisation should be mentioned. Provincial Cotton Committees have been established in all the cotton growing Provinces except Bombay. With these the Central Cotton Committee maintains close relations and looks to them for information on local conditions and for local support in dealing with measures of importance. In some instances Provincial Committees advise in regard to the programme of cotton work carried out by the Provincial Agricultural Departments and also on proposals for research schemes to be financed by the Central Cotton Committee. They have also rendered important assistance in connection with the provincial rules under the

Cotton Ginning and Pressing Factories Act, the local application of the Cotton Transport Act and the improvement of cotton marketing. In the Bombay Presidency, although no Provincial Cotton Committee exists, its place has been taken to a certain extent by Divisional Cotton Committees in each of the major cotton-growing tracts. In Madras, in addition to a Provincial Cotton Committee, local Cotton Committees have been established for each of the principal cotton-growing tracts.

12. *Work done and in progress.*—Turning now to the work which the Central Cotton Committee has already done, it has to its credit two important legislative measures, *viz.*, the Cotton Transport Act and the Cotton Ginning and Pressing Factories Act, both designed to stop malpractices which are known to cause loss to the cotton-grower and to the country generally. (*See* Appendix I.) The necessity for legislation of this nature was pointed out by the Indian Cotton Committee which indeed recommended still more drastic action. But since the latter Committee's recommendations were made the whole political organisation of the country has so changed that the original proposals would have been impossible of application. The fact that both these measures were passed by the Central Legislature almost without opposition and with no important amendment, is in itself a clear indication of the value of the thorough examination of such problems by a really representative central body.

13. The Cotton Transport Act is now in force in five sections of the Bombay Presidency and in three distinct cotton tracts in Madras and its value in checking wholesale adulteration has been fully established. Indian spinners have stated most definitely that the cottons of these areas have been greatly improved, whilst trade records of prices agree with the results of local enquiries in showing that the cotton-grower has obtained an enhanced price for his produce. It is also particularly satisfactory to record that two Indian States (Baroda and Rajpipla) have passed similar legislation and are fully satisfied that it has been beneficial. The Cotton Ginning and Pressing Factories Act is in its first year, but there is little doubt that it will prove of great value, whilst the many cotton-growing Indian States, almost without exception, have either taken similar action already or have promised to do so.

14. In regard to the improvement of cotton marketing the Committee has recommended for general adoption a system of regulated open markets controlled by Market Committees on which growers would be represented. The establishment of such markets requires provincial legislation and it is understood that two Local Governments have such legislation under consideration at the present moment. The Committee has also maintained close touch with the East India Cotton Association which now controls cotton trading in Bombay, and in several matters has been able to secure their assistance and support. The Association, for example, on the recommendation of the Committee, have modified their bye-laws to provide a wider scale of "on" allowance for cottons tendered against future contracts—the object being to encourage the delivery at every stage of cleaner cotton. It is believed that the effect of this change is gradually filtering down through the ginner and middleman to the grower, thus providing the latter with an incentive to the cleaner picking of cotton. The Committee has also secured some alteration in the standards against which different cottons are tendered in order to assist those tracts where improved cottons have now been established on a commercial scale. Other instances might be mentioned. Special attention has also been devoted to the establishment of a wider market for improved types of Indian cottons. The results of spinning tests on such cottons conducted at the Technological Laboratory have been published. Similar tests in England which have been

conducted by the Oldham Master Cotton Spinners' Association at our request, have provided a very clear demonstration of the extent to which certain Indian cottons are capable of replacing American cotton for particular purposes, and incidentally have also brought to light certain faults which require further attention. Type bales of those cottons which the Agricultural Departments have now established on a commercial scale have recently been supplied to several Cotton Exchanges in order that merchants and spinners alike may have access to representative samples of such cottons which, for various reasons, are rarely sold under varietal descriptions.

15. The Committee has also been able to effect considerable improvement in Indian cotton statistics. It now issues proper monthly returns of the cotton consumed in Indian mills and, through the medium of the Cotton Ginning and Pressing Factories Act, has succeeded in obtaining weekly returns of the cotton baled in cotton-pressing factories throughout British India. As the principal cotton-growing Provinces have also been able to arrange for voluntary returns of the un-baled cotton received in spinning mills, proper statistics of the commercial crop of Indian cotton are now available for the first time. The Government of India have recently accepted the recommendation of the Committee that the rail-borne trade returns for cotton should be re-established, thus affording a very important and valuable check on cotton production in various tracts, the regular utilisation of which should lead to important improvements in the accuracy of the periodical forecasts of cotton production.

16. Much has also been done in an informal way in the collection and supply of information (*see* Appendix II), the most important item perhaps being the issue of a statistical bulletin on the "Demand for various types of Indian cotton". This publication was made possible by the co-operation of the various cotton exporters and mill-owners who supplied from their own records details not usually included in official returns. It is believed that the information so obtained should be of very real value to the various agricultural departments in framing their future policies of cotton work.

17. Amongst other miscellaneous activities the Committee has inaugurated measures to prevent the introduction of the Mexican boll weevil into India. The necessary preliminary investigations were carried out in the Committee's own laboratory and with the aid of the trade members of the Committee, a complete scheme for the fumigation of American cotton on a commercial scale was worked out, which has been accepted by the Government of India and was put into force last December. American cotton is now imported at Bombay only, and there only after fumigation with hydrocyanic acid gas.

18. Recently the Committee has commenced a tentative enquiry into the finance of the cotton crop up-country, the ultimate object of which is to ascertain to what extent the grower is adequately financed—more particularly from the time when the crop is ready until it is finally marketed. After preliminary information had been obtained through the medium of a general questionnaire, local investigations in the villages and markets of four distinct tracts were started, and probably three more will be undertaken at an early date. These investigations are being carried out by full-time investigators selected by the local Directors of Agriculture and paid for by the Committee. The Committee has undertaken this enquiry in connection with its efforts to promote improvement of cotton marketing in primary markets. The results of the local investigations will at least supply a solid foundation of fact for the discussion of a difficult subject on which very diverse opinions are at present held.

The Indian Central Cotton Committee.

Cotton Research.

19. *Technological Research.*—The improvement in the quality of Indian cotton is of the greatest importance, both to the grower and the Indian mill industry. At present production is unbalanced and the large exportable surplus of Indian cotton (some three to four million bales) is mainly made up of varieties of very short staple. Of recent years there has been considerable improvement in this respect, as will be seen from the table given in Appendix III. The Indian production of medium-stapled cottons is but little in excess of the average requirements of Indian mills. The short-staple Indian cottons are so far below the general standard of the world's markets that the outlet for them is limited.

20. In all work for the improvement of the quality of an agricultural product suitable methods of testing quality are of great importance and frequently present considerable difficulty; this is especially true in the case of cotton. Trade valuations of new cottons, even if made by the most experienced graders, are frequently misleading, and expert graders themselves recognise this fact. The only satisfactory way of testing a new cotton is to spin it. Unfortunately, a practical test on a mill scale requires a larger quantity of cotton than is usually obtainable when a new cotton is in the experimental stage. Moreover, such tests disarrange the routine of the mill to a considerable extent and eventually provide less information than is desired. These considerations led the Committee to provide a complete miniature cotton mill for the carrying out of spinning tests. Such work also has a very direct bearing on the marketing of new varieties of cotton, and the data which are being accumulated will have a considerable bearing eventually on the whole question of cotton marketing in general.

21. *The Technological Laboratory.*—The capital cost of the Technological Laboratory, including buildings, land, machinery and equipment was Rs.4,87,000. The cost of maintenance is at present about Rs.1,30,000 per annum; it is estimated that this will rise to Rs.1,50,000. The laboratory is provided with a complete spinning plant, a testing room fully equipped for the examination of yarns and a Research Laboratory for the study of the cotton fibre. Spinning tests for Agricultural Departments are undertaken on cottons which are under experiment or which it is intended to introduce into cultivation. It has now been definitely proved that accurate spinning tests can be conducted on five-pound samples. Hence the cotton breeder can obtain such tests as soon as he is in a position to supply the twelve pounds of cotton necessary for duplicate spinning tests and for subsidiary work on the fibre. In other words, a spinning test can be made as soon as the plant breeder's work has reached the stage when he can say that the new strain is promising from an agricultural standpoint and indeed before complete tests for agricultural yield have been carried out. In this way cottons which are unsatisfactory from a trade standpoint can be eliminated with the minimum of delay, and only those strains which show real promise need be carried on to a large scale. From the opening of the laboratory until the end of March, 1926, 75 cottons have been so tested. In addition, more extensive tests have been carried out on a series of sixteen standard Indian cottons, mainly improved cottons which are already under cultivation on a commercial scale. Originally undertaken to provide standards of reference, the tests on these "standard" cottons have proved to be of considerable interest to the cotton trade and of real value in connection with the marketing of new varieties. They are now providing the basis for a further piece of research on the variation in quality of certain definite types in different seasons and in different environments.

22. Research work on the measurable characters of the cotton fibre has also been started with the object of determining which of these characters are of importance in deciding relative spinning value, and here again the

spinning test forms the basis of the work. Recent research in India and other countries has led to a considerable addition to our knowledge of the plant characters which determine the agricultural yield of cotton and, though much remains to be done, fair progress has been made in the study of the inheritance of such characters. But practically no information has been obtained as to the fibre characters which determine spinning value and, as it is practically impossible to study the inheritance of a complex of several characters, the cotton botanist is considerably handicapped. Hence work on the measurable characters of the cotton fibre forms an integral part of the Committee's research programme. Such work involves the designing of laboratory methods and apparatus for the measurement of the various fibre characters. Once the significance of a character has been established these methods can be utilised by the cotton botanist, and the measurement of certain fibre characters should eventually become part of the routine of the cotton breeder's laboratory. Hence the devising of apparatus and methods suitable for use in cotton botanists' laboratories is receiving attention from the outset. It will be seen that the Committee's Technological Laboratory approaches the problem entirely from the cotton-growing standpoint, differing in this respect from similar institutions in other countries. The application of our knowledge of the cotton fibre to the improvement of spinning processes is an aspect of cotton technology that the Committee, so far at any rate, has not attempted to touch.

Agricultural Research.

23. *The Indore Institute of Plant Industry.*—This Institute is financed partly by the Central Cotton Committee (which has undertaken to provide Rs.1,00,000 per annum, which is approximately four-fifths of the recurring expenditure in addition to an initial grant of Rs.2 lakhs for equipment) and partly by the following States in Central India:—

Indore, Datia, Dhar, Dewas (Senior), Rutlam, Jaora, Sitamau and Narsingarh.

Situated as it is in one of the largest homogeneous cotton tracts in the whole of India, the Institute offers an unusual opportunity for the study of a number of problems connected with cotton cultivation and promises eventually to place our knowledge of the botany and physiology of Indian cottons on a far more satisfactory basis. The Institute is managed by a Board of seven Governors; the President (the Agent to the Governor-General in Central India) is appointed by the Government of India, three Governors are appointed by the Central Cotton Committee and three by the contributing States.

The Indore State have granted a long lease of the land required for the Institute farm and buildings at a nominal rental, and have in many other ways made valuable contributions, both direct and indirect, which have helped to reduce the initial cost; Mr. Howard was appointed Director of the Institute at the end of 1924, the buildings have been completed, the land laid out and experimental work on cotton was started in June, 1925. Cotton forms the major part of the work of the Institute, though other crops of the tract are dealt with to a minor extent. The Director of the Institute acts as Agricultural Adviser to the contributing Central India States.

24. The following preliminary programme of work has been adopted:—

Programme of cotton work at the Institute.

(*a*) *Botanical Survey.*—Up to the present, little or no attempt has been made in India to isolate, classify and study the unit species which form the framework of the various species and varieties of cotton found on the black soils. It is true that the Indian cottons have been classified and surveyed from the point of view of systematic botany, but this is entirely inadequate

for modern work, as by this method cottons of very different agricultural value are not distinguished. The work needs to be carried much further, and nothing short of the isolation and study of the unit species will meet the case. This work has a direct practical bearing. It will, in all probability, lead to the isolation of useful types for distribution. It will also provide material for the plant breeder and for critical work on the physiology and agronomy of cotton.

(*b*) *Plant Breeding.*—Two main practical problems will be taken up at once:—

(1) The creation, establishment and maintenance of an island of long staple cotton on the Malwa plateau. The types isolated will be available for other areas in India, and the crop will enable a grade of improved cotton to be established for the mills and for the shippers;

(2) the improvement of the fibre of the hardy *roseum* type which is, in all other respects admirably suited for the low-lying areas of Central India.

In the solution of these questions the inheritance of characters will have to be studied. The results will apply not only locally but will also be of general interest.

(*c*) *The Physiology of the Cotton Crop.*—In order to increase production something more than improved varieties is needed. The new varieties must be provided with suitable conditions for growth. To discover these the physiology of the cotton plant must be studied and the factors which now limit production must be determined. This involves the study of root development, the relations of the root system to the soil type, and the influence of factors such as soil moisture, soil aeration and drainage, soil texture and soil temperature on growth. Included in these studies is the discovery of factors which produce the shedding of buds, flowers and bolls. During the course of these physiological studies the general nutrition of the cotton plant will be considered, and how far the yield can be improved by manuring and other methods of soil treatment.

(*d*) *The Influence of Environmental Factors on the Lint Characters.*—Modern industries demand a uniform product. Once this is obtained the purchase of raw material as well as the details of manufacture are simplified. In the case of cotton, any tract which can produce uniform lint will rapidly establish its reputation in the trade. It is well known, however, that the cotton fibre alters in character according to the soil on which it grows and to some extent according to the season. Further work is desirable on this matter with the object of discovering what factors bring about these changes, which varieties are most easily affected and whether any practical remedies exist for improving the uniformity of the fibre of the same cotton. This portion of the work is of direct bearing on the question of the maintenance of grades of cotton for the highest class of spinning in this country.

(*e*) It is also hoped to start work on cotton cytology shortly.

(*f*) From July, 1926, the Institute will be freely used for the training of Research Students; two of the Committee's Senior Students (who have already spent nearly three years at other experimental stations) and two junior research students have now been posted there.

Research Grants to Provincial Departments of Agriculture.

25. The Central Cotton Committee is at present financing twelve research projects in various Provinces. It was decided at a very early stage that by means of such research grants full advantage would be taken of existing staff, land, equipment and buildings, and it was represented to the Committee that the various Departments of Agriculture, with the aid of such

grants, could undertake work on specific problems of general importance which lay somewhat outside their own sphere and which they were unable to undertake with their existing resources. A list of these grants is given below, and a summary of the position of the various investigations will be found in Appendix IV:—

LIST OF RESEARCH GRANTS MADE BY THE INDIAN CENTRAL COTTON COMMITTEE TO PROVINCIAL DEPARTMENTS OF AGRICULTURE.

Bombay Presidency (Proper).—Total recurring grant of Rs.65,000 per annum for five years for the following investigations:—

I. The physiology of the cotton plant in Gujerat, with special reference to the loss of crop caused by the shedding of buds, flowers and bolls (at Surat).

II. (*a*) The cotton wilt disease (at Dharwar).

(*b*) The improvement of the Upland (Dharwar-American) type of cotton by hybridisation (at Dharwar).

III. The spotted boll worms (Earias Spp.), with particular reference to possible control measures (at Surat).

Sind.—Grant Rs.20,000 per annum for five years (now starting) for the provision of a Physiological Botanist and staff for a study of the physiology of the cotton plant under new canal colony conditions at the new Agricultural Research Station at Sakrand (Sukkur Barrage Canals).

Madras.—(*a*) *Herbaceum Cotton Scheme.*—Grant Rs.12,000 per annum for five years for a botanical investigation of the Herbaceum constituent of the Northerns and Westerns cottons.

(*b*) *Pempheres and Physiological Research Scheme.*—Grant Rs.55,000 per annum for five years to provide for a Botanist and Biochemist with botanical, chemical and entomological assistants and the necessary special equipment for two investigations, viz. (1) the relative susceptibility and immunity of various strains of cotton to the cotton stem weevil and (2) in bud, flower and boll shedding.

United Provinces.

Pink Boll Worm Investigation.—	Rs.
Non-recurring grant (for apparatus and special equipment)	34,000
Recurring grant	14,000 per annum.

The grant has been given to provide part of the cost of a very thorough investigation directed by the Government Entomologist, United Provinces, of the life history, incidence and control of the pink boll worm (*Platyedra Gossypiella*) under Northern India conditions.

Central Provinces.

Grant originally Rs.23,000 per annum for five years, since raised to Rs.32,000, Rs.33,000 and Rs.34,000 for 1926-27, 1927-28 and 1928-29.

(*a*) Plant breeding work for the improvement of the Central Provinces and Berar cottons in regard to staple.

(*b*) An investigation of cotton wilt in the Oomras tract.

Punjab.

(*a*) *Botanical.*—Non-recurring grant Rs.29,300. Recurring Rs.45,000 per annum for five years to provide for a Cotton Botanist and staff and equipment for work on cotton genetics and physiology, with special reference to canal colony conditions.

(*b*) *Punjab Entomological Research Scheme.* (Started this year.)
Non-recurring grant Rs.6,000.
Recurring grant Rs.17,000 per annum for five years for the provision of a special Entomologist, staff and equipment for an investigation of the pink boll worm (*P. Gossypiella*) under canal colony conditions.

Burma.

Non-recurring grant of Rs.3,000 for apparatus for the testing of cotton fibres.

The principle adopted is that in all cases the Committee's grants must be devoted to new work of more than local importance, that the Committee will not in any way compete with Agricultural Departments and that the Committee's grants must in no case be made use of to enable a Local Government to reduce its own provision for cotton research; it will be seen that these conditions have been adhered to. A Standing Research Sub-Committee considers progress reports on all research schemes annually and reports on them to the full Committee.

26. The Cotton Cess has enabled 70 more workers (29 posts not yet filled) to devote their time to cotton research. The general policy which has been followed in all aided schemes has been to make it a condition of the grant that the Local Government create the necessary temporary posts and appoint the staff. In many cases selected officers and assistants in the Department of Agriculture have been placed on special duty; in other cases special appointments have been made on short-term contracts. The staff at the Technological Laboratory are all employed by the Committee direct on agreement. The appointments are non-pensionable, but a provident fund (to which the Committee contributes 100 per cent. of the subscriber's contributions) has been provided.

RESEARCH STUDENTSHIPS.

27. The greatest difficulty of all is the paucity of qualified research workers, and from the commencement the Committee decided that it was necessary that it should take steps to remedy this defect. Six research studentships are awarded annually to distinguished graduates of Indian Universities to enable them to carry out cotton research under the guidance of experienced research officers. The scholarships ordinarily are tenable for two years, but have been extended to three in certain cases; up to the present twenty-five have been awarded. Five scholars have secured appointments on cotton research work, either in connection with the Committee's grants or in Provincial Departments of Agriculture; two have been awarded senior research studentships for further work; one has secured a Government scholarship for study at the Imperial College of Tropical Agriculture; two resigned; one on completion of his term has accepted a teaching post, and 14 are still holding junior research scholarships.

28. In February, 1925, the Committee completed a further examination of the present position of cotton research in India, and issued a report indicating what further work appeared to be most necessary and which items could suitably be undertaken by the Committee. (*See*: "The Present Position of Cotton Research in India," published by the Indian Central Cotton Committee—1925.) Attention is invited to the Committee's statement of cotton problems requiring investigation. The extent to which the Committee can undertake the investigations indicated will depend partly on the progress made by Provincial Departments of Agriculture with their own programmes of cotton development and partly on the funds available. The Committee's present programme of expenditure is slightly in excess of the

annual income now expected from the cotton cess, but additional work can be financed for a limited period and to a limited extent from accumulated balances. Unless the cotton cess is eventually raised to its original figure, or additional funds from other sources provided, the time will come when the Committee will have to reduce its commitments. In the opinion of the Committee this question can be postponed until the research schemes have been in progress for a sufficient time to produce tangible results. Similarly the extent to which the Committee's Research Students will continue to secure suitable employment will depend partly on the demand for trained men from Provincial Departments of Agriculture and partly on the Committee's own resources. At present work is not in any way hampered by want of funds, though considerable caution has to be observed in regard to new commitments.

QUESTION 11.—CROPS.—(*c*) In recent years the Indian production of cotton of medium staple (as distinct from short staple) has increased by about a million bales and the efforts of the Agricultural Departments have added some half a million bales of cotton of approximately 1 inch in staple to the Indian cotton crop. The most important of these new cottons in point of quantity are the following:—

	Production in 1925-26. *Bales.*
Punjab-American including Sind American	330,000
Cambodia	164,000
Surat 1027	50,000(a)
Dharwar 1 (Improved Kumpta)	25,000(a)
Gadag 1 (Improved Dharwar American)	20,000(a)
Improved Northerns—Nandyal 14	3,000
Improved Westerns—Hagari 25	25,000
Company type of Karunganni	33,500

(*a*) plus a further unknown quantity from uncontrolled seed.

In regard to Karunganni it should be added that the figures refer to the quantity known to be produced from seed of the "Company" type. As a matter of fact about half the Tinnevelly area is reported to be under the general Karunganni type of a lower degree of purity; the total production of Karunganni cotton amounts to some 60,000 bales.

The Committee at various times has received a good deal of detailed information on the spread of these improved cottons and on the additional profit which they have brought to the grower. In both 1924-25 and 1925-26, Punjab-American cotton gave a slightly higher average yield per acre than Punjab *Deshi* (the Sind-Punjab type of Bengals) and fetched some Rs. 50 per bale more on the average—considerably higher prices being paid for the best qualities.

The introduction of Cambodia cotton into part of Madras as an irrigated crop led to a new standard of cultivation, the yields obtained being the highest in India. The East India Cotton Association's statement of differences between standards for the 2 years 1924-25 and 1925-26 places Cambodia cotton at Rs.35 per bale above "Westerns" but the prices obtained for good lots were very much higher than this and the best irrigated Cambodia cotton commands considerably higher prices than Punjab-American.

Surat cotton again was quoted at some Rs.30 per bale over Broach; the farm variety (Surat 1027) obtained premiums of Rs.6 to 18 per bale over ordinary Surat.

A well known member of the Bombay cotton trade, who has a long and detailed experience with the Surat District, estimated in 1923 that the introduction of the Surat 1027 variety had brought an additional sum of Rs.30 lakhs per annum to the cotton growers of South Gujarat.

The figures for auction sales of *kapas* by Co-operative Cotton Sale Societies show that, for the best qualities of *kapas* of the Gadag No. 1 and Dharwar No. 1 varieties, premiums of 25 per cent. and 10 per cent. were obtained.

The Madras Agricultural Department reported that in 1925-26 growers of the Nandyal 14 and Hagari 25 varieties obtained premiums of Rs.11 and Rs.20 per bale respectively.

Further instances could be quoted, but this seems unnecessary; doubtless various Agricultural Departments will place before the Commission detailed statements of the work which has been done. But the Committee wish definitely to state that the introduction of superior varieties of cotton has been accomplished successfully on so large a scale that the character of the Indian Cotton crop has been materially altered for the better and, further, that it is also clear that the growers have benefited materially from these changes.

In the above we have only referred to instances where cottons of superior staple have been introduced into general cultivation. There are several other instances where, although no improvement in staple has been effected, selected strains of short-staple cottons, giving a higher yield per acre and a higher percentage of cotton to seed, have been established on a large scale with a certain amount of benefit to cotton growers. The administration reports of the various Departments of Agriculture indicate that such varieties are now being grown on about 792,000 acres.

QUESTION 13 (*i*) CROP PROTECTION.—*External.*—Two instances illustrating the necessity of constant vigilance to prevent the introduction of strange insect-pests have come to the notice of the Central Cotton Committee. On our recommendation the Government of India in 1925 issued a notification under the Destructive Insects and Pests Act requiring all American cotton to be fumigated as a condition of entry into British India; imports are restricted for the present, to the port of Bombay. The technical and commercial details of the fumigation scheme were worked out by the Committee. The object of this precaution is to prevent the Mexican boll weevil from being introduced into India in baled cotton which is imported in relatively small quantities for the use of Indian mills.

2. The importation of unginned cotton is totally prohibited at all ports in British India. Cotton-seed can only be imported if disinfected with carbon bisulphide. The object of this precaution is to prevent the introduction of strange cotton pests with imported seed. Importations of seed are very rarely necessary as the Indian supply is ample, but occasional imports of East African cotton seed have occurred at ports in the Kathiawar States. The Indian Central Cotton Committee has under consideration at present the question of improved arrangements for these ports since there appears to be a definite risk that the Sudan boll-worm (the African red boll-worm (*Diparopsis Castanea*) might be imported into India from East Africa—at present it is not known in the country. It appears to us that when the Destructive Insects and Pests Act was passed the importance of securing the fullest co-operation of the maritime Indian States was not fully realised. If this is not secured internal measures against infection may become necessary in the future.

(*ii*) CROP PROTECTION.—*Internal.*—Two instances have come to the notice of the Committee:—

(*a*) In Madras the Madras Pest Act has been of considerable value in reducing the damage to the Cambodia cotton crop by the pink boll-worm. In that Province little progress could have been made without an Act requiring old cotton to be removed before a certain date as the carry-over from season to season does not depend on long cycle larvae, as in Egypt and Northern India, and hence a definite close season

between one crop and the next is essential. The Act has not been so successful as it might have been, largely because the rules have been relaxed and too short a close season allowed.

(*b*) Probably the tract in which most damage is caused by the pink boll-worm is the United Provinces and the adjoining portion of the Punjab. In the United Provinces, at a moderate estimate, the loss in yield and quality together amounts to 25 per cent. of the total value of the crop. Investigations at Cawnpore, financed in part by the Indian Central Cotton Committee, have indicated that control of the pest can be secured by the disinfection of all the seed in a given area by heat treatment. The work is still in progress but the indications are that, provided that only treated seed is sown and that re-infection from stored seed or stored *kapas* is avoided, (by timely ginning and the treatment of all seed residues) other methods of re-infection are relatively unimportant. Should these results be confirmed the treatment by heat of all seed at ginning factories would enable this pest to be practically eliminated.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—(*d*) *Cotton Ginning.*—The hand-ginning of cotton has practically disappeared, and it would be useless to try to revive it as the prices paid for hand-ginned cotton are much lower than for machine-ginned.

Small ginning factories for zamindars have been suggested and a certain number exist. They are useful in connection with seed supply, but a certain amount of caution is necessary in encouraging the establishment of such factories. As is stated in answer to another question, small ginning factories almost invariably are inefficient and turn out indifferent cotton. India is well equipped with ginning factories, in fact, many of the older cotton-growing areas have too many, and many of them lie idle except in years of unusually large crops. On the other hand, some areas have too few ginning factories, with the result that *kapas* travels long distances and ginning and pressing rates are unduly high. One indirect result of the Cotton Transport Act has been to encourage the erection of new ginning factories in areas previously under-provided with ginning factories.

Action by Government is rarely necessary in this matter, but in new or rapidly developing cotton tracts the policy of the Punjab Government of giving leases of land for the erection of ginning factories at suitable centres and under certain conditions has much to recommend it.

Utilisation of cotton-seed.—The average Indian production of cotton-seed is some two million tons annually, the average export for the last five years being 156,000 tons per annum. The quantity required annually for sowing is of the order of 200,000 tons, the remainder being used for cattle food. The quantity crushed at present is relatively small, the bulk of the seed being fed uncrushed. There are several instances of action by Government to encourage the crushing of cotton-seed, and so far the difficulty has been to dispose of the cake; such factories as do exist appear to have had little difficulty in disposing of their cotton-seed oil, but have had to export their cake. Further, the general experience appears to be that there are other seeds which are more profitable to the oil-mill than cotton-seed.

With one or two exceptions, factories crushing cotton-seed in India have made undecorticated cake and this is less popular with cultivators than, for example, village-made rape-cake. Decorticated cotton-seed cake, on the other hand, is relatively expensive. The feeding of the uncrushed cotton-seed to cattle is extremely wasteful, and it would appear to be worth while carrying out experiments to design better methods of handling Indian cotton-seed. If, for example, the fuzz hairs could be removed by special machinery (either by machines of the Segundo type or by specially designed

linter gins) a more suitable undecorticated cake would be obtained and the short fibre, which has a commercial value, would be recovered.

It may be added that if the bulk of the surplus cotton-seed could be crushed as it leaves the ginnery the control of such insect pests as the pink boll-worm would be considerably facilitated. Further, some cotton-growing tracts find it necessary to import cotton-seed from other areas for cattle food, and in order to maintain the purity of the seed supply, it has been found necessary to regulate such imports by means of the Cotton Transport Act; the importation of cotton-seed cake would be preferable in every way.

QUESTION 20.—MARKETING.—(*a*) Existing facilities for the marketing of cotton by the grower are far from satisfactory, and there is comparatively little progress to record since the Indian Cotton Committee reported on this matter in 1918. On the other hand, there has been very substantial improvement in the wholesale marketing of cotton in Bombay. The Indian Central Cotton Committee have constantly urged the establishment of open cotton markets, controlled by market committees on which growers are well represented, as the only means of securing to the cultivator a square deal, and an enabling Bill with this object in view is to be introduced at the next session of the Bombay Legislative Council.

The need for properly-regulated cotton markets has been emphasised in the course of the Committee's recent investigations into the finance of the cotton crop in Khandesh and Berar. In these areas at least, it appears that, though indebtedness is fairly heavy, the cultivator is not greatly hampered by it in the disposal of his produce. In very few instances had loans been taken from the persons to whom the cotton was sold and the cultivator seemed to suffer most from lack of suitable market facilities.

In Berar organised cotton markets exist which are controlled by market committees. Details of the disposal of the *kapas* of 640 cultivators were recorded and 46·1 per cent. of their *kapas* was sold by the growers in these open markets, 36·5 per cent. being sold in the villages* mainly to travelling buyers. There is little doubt that cotton growers use these markets and find them of benefit. Even where cultivators sell their produce in the villages the markets have a considerable influence on the prices realised and cultivators have a much better idea of prevailing market rates.

Numerous complaints about the management of the market were recorded, the principal being:—

(1) Cotton (*kapas*) is rarely sold by open bid, but usually by secret bids.

(2) The official market rate which is posted up when the market opens is rarely paid.

(3) The rate shown on the "gate-pass" (which accompanies the cart when it leaves the market) is the official rate of the day and not the actual rate settled.

(4) Weighing takes place in the ginning factories—which are not part of the market—and numerous abuses take place of which the principal are:—

(*a*) After unloading and weighment has commenced disputes about quality arise and the grower has to accept from the buyer a lower rate than he bargained for; if he refused he would have to take his cart home.

(*b*) Various unfair deductions are made from the weights.

(5) A number of cesses are levied in the market, which are not allowed by the market rules.

(6) The brokers through whom the cultivators sell do not represent the seller nor do they watch his interests, but also act for the buyers and serve the latter's interest.

* 17·4 per cent. unsold at the close of the investigation (March).

Broadly it may be said that the fault lies in the administration of the rules of the market rather than in the rules and that no substantial improvement can be looked for until growers have an effective voice on the market committees. In one important respect the rules under the Berar Cotton and Grain Markets Law is defective. The "market proper" is defined (in Rule 46) as "including all land, the property of the Government or of the Municipality, within a radius of 500 yards from the centre of the market yard." It is only in the market yard and market proper that the market committees can enforce the rules of the market. Hence it is essential that the compounds of all ginning factories served by the market should be included in the market proper.

Cotton marketing in Khandesh.—General conditions in this part of the Bombay Presidency closely resemble those in Berar which it adjoins, but there is this important difference that while there are recognised cotton market centres the markets are entirely unregulated. It was found that out of 830 cultivators 120 (14 per cent.) had sold their *kapas* in the larger markets, the proportion being higher (29 per cent.) in West Khandesh than in East Khandesh. At Dhulia market 60 per cent. and at Amalner 27 per cent. of the carts recorded on certain days were brought in by cultivators. The commonest method of sale was to a visiting trader in the village. The enquiry showed that better rates and better weighments are obtained in the markets. The replies of individual cultivators showed that properly regulated open markets with open bidding would be appreciated. A number of cultivators stated that they do not use the markets because of the disputes that occur about the rates after weighment has started and because of arbitrary deductions from the weights.

Northern Gujerat.—A third enquiry was carried out in part of the Dholleras cotton area where the *Wagad* (closed boll variety) is produced. Here the relations between the growers and the village moneylenders are more in keeping with the old tradition for, generally speaking, the grower was found to keep a running account with the village *sowcar* and to sell his produce either to or through him. Recorded borrowings were heavier, but interest rates rather lower than in the other two areas. Co-operative societies had not provided much of the finance needed by cotton growers. On the marketing side the enquiry was not completed, but it is of interest to record that of 774 cultivators 28·2 per cent. had borrowed no money and 48·3 per cent. had sold their *kapas* (or bolls) in the larger markets. Here also properly regulated open markets would help the grower materially.

In none of the markets investigated was any warehouse accommodation available and this as much as anything forces growers to submit to unfair deductions or to sell at unfavourable rates.

We would refer also to another system of cotton marketing prevailing in the Southern Division of the Bombay Presidency which has come to our notice in the course of our work, but regarding which we have carried out no local investigations. In such markets as Hubli a cultivator can deposit his *kapas* with a *dalal* (broker) for sale and obtains an advance on the security of the cotton. More often he has already taken an advance from the *dalal*. The *dalal* sells the *kapas* in due course and settles accounts with the cultivator. The principal complaints are:—

(1) That the cultivator is not given a receipt showing the weight of cotton deposited for sale.

(2) That he does not know the rate at which his cotton is actually sold.

(3) That the *dalal* bulks good, bad and indifferent lots and sells them at a flat rate, to the detriment of those cultivators who bring in good cotton.

In other parts of India unregulated cotton markets are fairly numerous at various centres; the extent to which they are used by cotton growers varies with local conditions. The possibility of introducing regulated markets in any given tract must depend largely on the density of cotton cultivation and on what other staple crops are produced and marketed in quantity.

Wholesale markets.—The following table shows for the last five years the estimated Indian cotton crop, exports, mill consumption and Bombay stocks on 31st August.

TABLE A.

(*In thousand bales of 400 lbs. each.*)

Seasons.	Estimated Indian crop.	Exports.	Indian Mill consumption.	Bombay stocks—beginning of the season.	Remarks.
1921–22	4,485	3,170	2,159	1,212	Stocks on 31st August, 1926. 427,000 bales.
1922–23	5,073	3,473	2,109	988	
1923–24	5,161	3,450	1,846	692	
1924–25	6,088	3,998	2,175	512	
1925–26	6,038	3,775	1,983	373	

The cotton used for domestic purposes in the villages and for hand spinning, which is conventionally estimated at 7,50,000 bales of cotton annually, may be excluded from consideration as little of it comes on the major markets.

Table B shows the arrivals of cotton in Bombay for the same five years and Table C gives the arrivals at the chief ports of India.

TABLE B.*

Receipts (in bales) of various growths of cotton into Bombay from 1st September to 31st August for the years 1921-22 to 1925-26.

Year.	Khandesh.	Central India.	Barsi Hyderabad Nagar. Gaorani.	Berar.	Central Provinces.	Dholleras.	N.W. Provinces.	Rajputana.	Sind-Punjab.
1921-22 ...	355,071	226,427	373,985	763,045	267,147	317,414	170,053	153,576	220,121
1922-23 ...	361,633	313,158	346,392	666,233	272,566	440,075	84,929	135,270	276,592
1923-24 ...	340,771	302,050	310,279	647,314	268,766	184,907	122,536	90,203	310,881
1924-25 ...	297,806	351,654	308,365	574,520	259,870	316,809	138,887	84,216	365,478
1925-26 ...	292,847	386,999	299,702	479,843	247,023	285,748	131,256	117,015	296,512

Year.	Broach.	Kumpta Dharwar.	Western Northerns.	Coconada.	Tinnevelly and Cambodia	Persians.	Americans.	Egyptians.	East Africans.	Comilla, Burmah and other sorts.	Total.
1921-22 ...	222,630	147,400	63,574	8,365	64,238	3,226	23,058	2,050	—	81,099	3,462,479
1922-23 ...	414,378	132,693	85,340	4,182	47,384	5,737	1,632	1,421	51,069	603	3,641,287
1923-24 ...	307,772	187,493	93,019	2,888	30,322	9,764	2	3,718	77,932	877	3,291,494
1924-25 ...	486,985	222,650	126,862	2,403	41,369	6,904	9,649	648	74,289	3,513	3,667,877
1425-26 ...	313,681	168,007	117,182	3,302	68,875	5,627	28,130	638	88,569	3,700	3,334,656

* Bombay Cotton Annual, 1925-26, No. 7.

TABLE C.*

Receipts of raw cotton (in bales) into the chief ports of India.
(Year ending 31st August.)

Year.	Bombay.	Karachi.	Madras.	Tuticorin.	Calcutta.	Rangoon.
1922–23 ...	3,641,287	524,104	Not available	Not available	80,595	Not available
1923–24 ...	3,291,494	713,429	do.	do.	79,072	do.
1924–25 ...	3,667,877	1,035,212	do.	do.	104,329	do.
2925–26 ...	3,334,656	1,171,906	162,762	84,568	75,630	28,752

It will be seen that Indian mills take some two million bales of cotton annually and that the amount exported varies both with the size of the crop and with demand. Indian mills obtain part of their requirements direct in up-country markets and part from Bombay and other ports. The principal wholesale cotton market is Bombay and stocks there at the height of the season run from 800,000 to 1,200,000 bales. The cotton trade in Bombay is now regulated by the East India Cotton Association (which is affiliated to the Liverpool Cotton Association). This Association has established regular conditions of trading with hedge and delivery contracts, provides a clearing house for periodical settlements, maintains proper standards of Indian cottons, makes proper arrangements for arbitrations and appeals and performs the general functions of a modern cotton exchange. The Association is a representative body and derives its powers from the Bombay Cotton Contracts Act (XIV. of 1922). Many of the reforms advocated by the Indian Cotton Committee of 1917-18 have ben introduced in whole or part. The Association has co-operated with the Indian Central Cotton Committee in many matters which affect the grower directly or indirectly. The introduction of " on " allowances up to two full classes above the basic grade of the hedge contracts offers a direct incentive to the delivery of cleaner cotton, which the original system did not, and it is believed that such an incentive has an effect on the prices paid for cleaner *kapas* by buyers in the primary markets. Recently cotton from Ankleshwar and Rajpipla (in South Gujerat—Bombay Presidency) at the Committee's representation has been made tenderable against Surat standards in consideration of the fact that the Surat 1027 variety has been successfully established in these areas. The Association has also supported the Committee in the administration of the Cotton Ginning and Pressing Factories and Cotton Transport Acts, introducing changes in its bye-laws and schedules where necessary. Hence it will be seen that the wholesale marketing of cotton in India is far better regulated than that of most agricultural products.

It is not suggested that the reform of cotton trading conditions in Bombay is by any means complete; on the contrary much remains to be done. The present system of hedge contracts, in particular, is severely criticised by many as leaving the market too much in the hands of speculators and strong representations have been made that the number of contracts should be reduced and the contracts broadened. Against this it has been urged by others that too rapid a broadening of hedge contracts might lead to the depressing of prices. The fact remains that over-speculation and " corners " have been greatly reduced and that gradually the Association has been able to do much for the more orderly marketing of cotton.

* Bombay Cotton Annual, 1925-26, No. 7.

The Karachi cotton market is of growing importance, this port being the natural outlet for Sind and Punjab cotton, and recently a demand has arisen for better market organisation. The Indian Central Cotton Committee has been able to assist in the introduction of certain reforms, including the establishment of standards and provision for arbitration, which took effect from January 1st. No cotton association exists at Karachi at present. The new system of contracts was agreed to by a joint meeting of the Karachi Chamber of Commerce and Karachi Indian Merchants' Association and a joint Committee of these bodies has been appointed to deal with standards. This question continues to occupy the attention of the Central Cotton Committee.

Both exporters and merchants who supply Indian mills, and, to a limited extent, Indian mills themselves, buy through their own agencies or branches considerable quantities of cotton direct in up-country markets and even at individual ginning factories, and such cotton only passes through the ports in transit. For instance, last season's arrivals of cotton in Karachi totalled 11,22,000 bales, of which some 5,00,000 bales were marketed in Karachi, the other 6,00,000 bales having been already purchased for shipment.

This system of purchase up-country is a well established feature of Indian cotton marketing, which tends to become more important. It has obvious advantages; the large consumer is brought into more direct touch with the producer and has an opportunity of selecting the best cottons; the increased competition and economies in handling and overhead charges undoubtedly tend to reduce middleman's charges and to lead to higher prices to the grower.

The assistance of mill buyers and exporters has been of very real value to the Agricultural Departments when new varieties have come on the market; conversely there is little doubt that such buyers obtain the pick of such crops as Punjab-American and Cambodia. But the system has its draw-backs, particularly where export is concerned. There have been serious complaints for some years about the adulteration of Punjab-American with short staple Punjab *deshi* cotton and of faultily ginned cotton from Sind and the Punjab containing excessive amounts of seed and other impurities. There is little doubt that cottons have been shipped direct from up-country centres which, if they had come on the Bombay market, would have been heavily penalised at arbitration as being considerably below the recognised standards.

(*b*) *System of marketing and distribution.*—The marketing of cotton is complicated by the fact that before it can be handled in wholesale quantities or transported any great distance the seed-cotton as marketed by the grower must undergo what is practically a preliminary manufacturing process, viz., ginning and baling. Ginning of cotton by hand by the grower is practically extinct and practically all cotton is ginned in comparatively large factories using modern machinery. Baling is mainly done by hydraulic presses (steam-driven) and generally speaking high density export bales are produced.

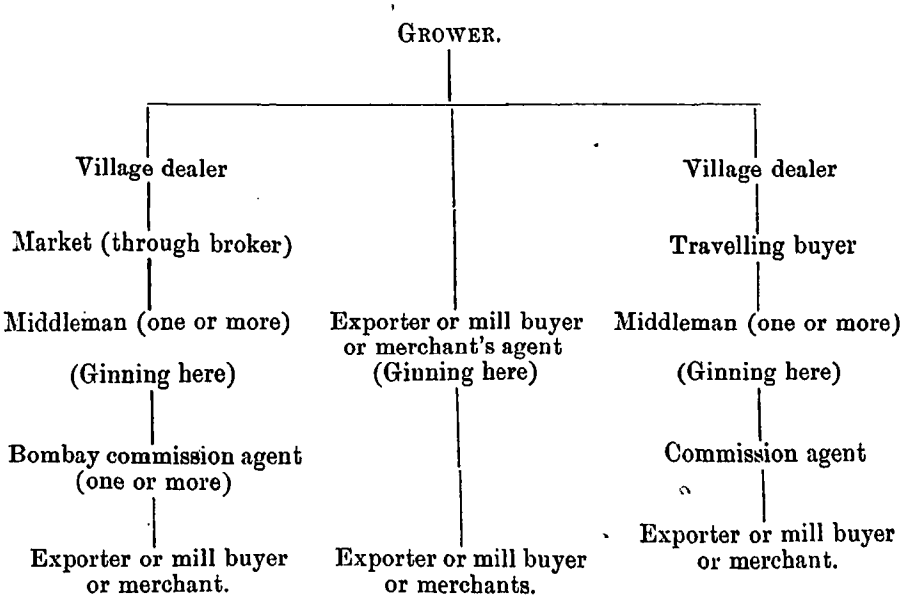
In some tracts growers get their seed-cotton (*kapas*) ginned and sell the lint, but generally speaking the grower sells *kapas* outright. The sale of ungraded *kapas* is unsatisfactory in many respects for it does not lead to the grower getting full value for superior cotton. Once cotton is ginned and pressed, provided that it is offered in commercial quantities, it can be sold on its merits and cotton which is above the average in staple or grade will usually fetch a good price.

The Indian Central Cotton Committee.

Farm ginning and small ginning factories do not offer a remedy as small factories are rarely well managed and in many the ginning is indifferent. · One practical solution of this difficulty seems to lie in co-operative ginning—a question which is discussed under Question 22.

It should be added that exporters and mill buyers often prefer to purchase *kapas* (or to purchase cotton on the condition that *kapas* is delivered and ginned under their supervision) as they have come to realise that it is much easier to judge of the purity and uniformity of a cotton before it is ginned than after. Where an improved variety has been established over a considerable area the direct purchase of *kapas* by exporters and mill buyers has brought the grower into much closer touch with the consumer and has led to satisfactory prices to the grower for high grade produce. Though co-operative ginning has been referred to above it is not the only method of organising the marketing of improved cottons. The general faults of the primary market have been dealt with already.

The diagram below gives some indication of the course of cotton from the grower to the mill or exporter.



Obviously, the possible variations are extremely numerous and the number of intervening middlemen may be very high.

The Committee's enquiries have not yet reached the stage when the services performed by each middleman can be evaluated and we have not yet ascertained all the charges involved in the chain of transactions. Some light, however, is thrown on the subject by some details collected in the course of the Berar and Khandesh enquiries as to the way in which the larger buyers in up-country markets fix their prices with relation to Bombay.

At Amraoti in Berar, in order to arrive at the local price for *kapas* the custom is to deduct Rs.50 per *khandi* (two bales) from the current Bombay quotation to cover charges and to obtain the local price of ginned cotton: from this the local price of *kapas* is calculated as below:—

Bombay Oomra Rs. 336 per *khandi* of lint (784 lbs. equals 28 maunds).

		Rs.	
Bombay	...	336.	
		— 50	Deduct expenses as railway freight, &c.
		286	Value of 2 *bojas* of lint.
		143	,, ,, 1 ,, ,,
		20	Add value of seed (26 maunds) from 40 maunds *kapas*.
		163	
		11	Deduct ginning charges, &c.
		152	Cost of 40 maunds of *kapas*.
		107	Rate per *khandi* of *kapas* (28 maunds).

The difference of Rs.50 per *khandi* between Amraoti and Bombay is made up of the following items:—

Pressing 2 bales at, say Rs.3/8 per bale	Rs. 7
Railway freight on 2 bales, Amraoti-Bombay	Rs.22
Bombay Town Duty on 2 bales	Rs. 2
"Other charges"	Rs.19
Total	Rs.50

Amraoti market charges, for a cultivator who sells his cotton in the market himself, work out to Rs.4 per *khandi* (2 bales) of cotton.

Hence, including ginning charges, the total charges per bale of cotton (fetching Rs.125 at present in Bombay) work out to some Rs.33. In addition the cultivator gets some Rs.20 for the seed.

In connection with the Khandesh cotton enquiry similar figures have been furnished to us for the Jalgaon cotton market, the total charges to Bombay being Rs.55 per *khandi* as compared to Rs.50 for Amraoti.

It may be added that the investigators reported that a few larger growers who were able to get their cotton ginned and pressed and who sold baled cotton obtained considerably better nett return than if they had sold their *kapas* at prevailing market rates. This is what one would expect, but it should be added that such comparisons are complicated by changes in market prices and by the fact that it is easier to obtain full value for superior cotton when it has been ginned and pressed.

(c) The principal complaints against Indian cottons are:—

(1) Excessive amounts of leaf and other impurities.
(2) Presence of cut seed in the cotton.
(3) Damping in the process of pressing leading to depreciation in the cotton.
(4) Mixing of different varieties.
(5) False packing.
(6) Gin damage.
(7) Occasionally too dense baling.

The last only refers to long staple cotton for export and is purely a matter of price. Indian baling, on the whole, is very good but of high density owing to long sea and rail freights. If less dense bales are required they can be obtained at a price commensurate with the additional expense of baling and transport. The other complaints apply equally to cotton for Indian mills and for export.

(1) The grower is frequently blamed for this complaint and the Indian Cotton Committee urged Agricultural Departments to take steps to

encourage the cleaner picking of cotton. Certain growths of Indian cotton do come to market in an extremely leafy condition. Cleaner picking involves more labour and expense and the grower will only undertake this if he gets a correspondingly higher price for his cotton. At the wholesale end the necessary incentive has been provided by the new East India Cotton Association bye-laws referred to above.

The following table showing "on" allowances for the various grades of Oomras and Berar cotton will show the price paid for cleaner cottons.

Spot rates fixed by the Daily Rates Committee of the East India Cotton Association for Oomras in Rs. per khandi.

——	Extra Superfine.	Superfine.	Fine.	Fully Good.	Percentage difference between value of Extra Superfine and Fully Good.
On 12-1-1924 ...	635	620	610	595	
Difference ...	—	15	10	15	5·9 %
On 20-1-1925 ..	492	482	472	462	
Difference ...	—	10	10	10	6·4 %
On 12-1-1926 ...	374	364	354	344	
Difference ...		10	10	10	8·9 %
On 12-1-1927 ...	say 257*	252	247	242	
Difference ...	—	5	5	5	6·2 %

Better organisation of primary marketing is needed to follow this up.

The other complaints, and to a certain extent the first, are mainly due to malpractices and negligence in ginning and pressing factories. To deal with these the Indian Cotton Committee recommended restrictions on the transport of cotton between different parts of the country and the licensing of all cotton ginning and pressing factories. The final recommendations of the Central Cotton Committee varied considerably from those of the Indian Cotton Committee; the Cotton Transport Act became law on the 23rd of February, 1923, and the Cotton Ginning and Pressing Factories Act on the 8th of August, 1925.

The Cotton Transport Act enables a Local Government, with the consent of its Local Council, to notify any area for protection and to prohibit the importation (save under license) of cotton, *kapas*, cotton-seed or cotton-waste into that area by rail, road, river or sea or by any one or more of these means of transport.

By cutting off the supply of inferior cottons previously imported into certain tracts with the deliberate intention of adulteration, the grosser forms of abuse have been checked in those areas to which the Act has been applied.

The Act however cannot be used to stop mixing in such areas as the Punjab Canal Colonies where two distinct cottons—one a short-stapled indigenous variety, the other a long-stapled American variety—are grown in the same tract. It has been repeatedly stated that in such tracts the mixing is done by the grower—this statement has not been substantiated and the table below showing the result of a recent survey in the Punjab shows that mixing by the cultivator is negligible and that the two varieties are marketed separately but mixed deliberately at the ginning factories.

* No actual rate fixed for Extra Superfine—difference of Rs.5 over Superfine assumed.

STATEMENT SHOWING PERCENTAGES OF *Deshi* COTTON IN AMERICAN COTTON FIELDS IN KHARIF, 1925.

On various canals in the Punjab.

Canal. (1)	Area in acres containing 5 per cent. of *deshi* plants or less. (2)	Area in acres containing 6 to 10 per cent *deshi* plants. (3)	Area in acres containing 11 to 15 per cent. *deshi* plants. (4)	Area in acres containing 16 to 25 per cent. *deshi* plants. (5)	Area in acres containing 26 to 35 per cent. *deshi* plants. (6)	Area in acres containing 36 to 50 per cent. *deshi* plants. (7)	Remarks. (8)
Lower Bari Doab	(63·0%) 112,518	(16·1%) 28,769	(8·8%) 15,737	(5·6%) 10,033	(3·3%) 5,792	(3·2%) 5,627	178,476
Upper Chenab ...	(59·3%) 17,202	(14·5%) 4,219	(9·1%) 2,629	(9·0%) 2,614	(3·4%) 987	(4.7%) 1,364	29,015
Lower Chenab ...	(76·4%) 209,046	(10·7%) 29,193	(5·9%) 16,220	(3·9%) 10,574	(1·7%) 4,616	(1.4%) 3,835	273,484
Upper Jhelum ...	(60·2%) 26,375	(16·8%) 7,520	(9·0%) 4,013	(6·1%) 2,749	(3·6%) 1,621	(4·3%) 1 904	44,782
Lower Jhelum ...	(60·0%) 26,939	(17·7%) 7,954	(9·2%) 4,109	(6·8%) 3,066	(3·5%) 1,560	(2·8%) 1,241	44,869
TOTAL ...	392,680	77,655	42,708	29,036	14,576	13,971	570,626 acres.
	68·8%	13·6	7·5%	5·1%	2·6%	2·4%	100%

Worse than this the two types of cotton are deliberately mixed by exporters who sell such cottons against private types which neither correspond to the cotton as grown nor to the East India Cotton Association standards.

An attempt to deal with this situation has been made in two ways.

(1) The Central Cotton Committee has provided at the Cotton Exchanges maintained by the Liverpool, Manchester and East India Cotton Associations type bales of pure cottons which are available to both sellers and buyers and which show the quality of genuine cotton of the improved varieties introduced by the Agricultural Departments. This provides a partial remedy to the complaint that the spinner never sees Indian cottons at their best.

(2) By the Cotton Ginning and Pressing Factories Act, which is also aimed at other abuses. This Act, in addition to requiring certain simple but important reforms in the construction of cotton ginning and pressing factories, requires all bales of cotton to be marked on the central hoop with the mark allotted by Government to the pressing factory, and with two numbers denoting the season in which the cotton was pressed. In addition, all bales must be numbered serially and a record of the ownership of the cotton at the time of pressing must be maintained. Ginning factories are required to maintain similar records of ownership of *kapas* ginned. Hence faulty cotton can be traced to the press and to the original owner, so that the responsibility for malpractices can be brought home. Given this record of ownership, it is hoped that the cotton trade itself will be able to deal with many of the abuses prevalent in the past. Should this hope prove unfounded, other means will have to be devised.

In several countries, notably in Egypt and the Sudan, the mixing of different varieties of cotton has been made a penal offence. The experience of the Bombay Cotton Frauds Acts of 1863 and 1878 does not encourage any attempt to repeat legislation of this kind in India. The copies below of the latest regulations for Egypt and the Sudan indicate the lengths to which those countries have found it necessary to go.

Summary of Egyptian Law No. 4 of 1926 to Prevent the Mixing of Different Varieties of Cotton.

A schedule is attached to the Law enumerating the present recognised varieties of cotton; the law enables the Minister of Agriculture to add to the schedule. The mixing of cotton of one variety with cotton of another variety by any person is made a penal offence. Cotton found to be mixed may be seized by any officer of the Judicial Police or by any official of the Ministry of Agriculture appointed for the purpose and these persons are authorised to enter ginning factories and stores for the purposes of administering the Act. Any person found in possession of mixed cotton can be made to appear before a Commission appointed for the purpose which must, within eight days, decide whether the cotton is mixed. If the *kapas* is found to be mixed the Administration will arrange for it to be ginned and the cotton sold in the market at Alexandria; all costs of ginning, freight, &c., are to be deducted from the sale price and, of the balance, three-fourths will be paid to the owner and one-fourth forfeited to Government.

The penalty in case of conviction, in addition to the seizure of the cotton, is a fine of P.T. 100, imprisonment for seven days—or both. In case of conviction the informers will be paid half the amount realised from forfeitures.

Law 5 of 1926.—Control of Cotton-seed for Sowing.

No ginner may gin cotton-seed for sowing (*taqawi*) without a special license from the Ministry of Agriculture which is only granted after the

kapas has been examined and passed. Authorised *taqawi* seed is placed in bags of a special pattern sealed by an official of the Ministry. In case of dispute the question of the quality of the *kapas* or cotton-seed is referred to a Board of Arbitrators appointed partly by the Ministry of Agriculture and partly by the Alexandria Central Produce Association. It is a penal offence to sell, buy, deliver or receive *taqawi* cotton-seed unless it is contained in the special bags prescribed by the Ministry of Agriculture and duly sealed. No person may trade in *taqawi* cotton-seed without a license from the Ministry of Agriculture. All persons trading in cotton-seed and all oil-mills are required to take out licenses and to maintain registers showing the disposal of all cotton-seed received. Cotton-seed, other than *taqawi* seed, may not be transported from one part of Egypt to another save under license except direct by train to ports or to any licensed oil-mill. For transport of cotton-seed by road a special license for each consignment is required except for *taqawi* seed.

The penalties and power of seizure and entry are similar to those in Law 4.

SUDAN.

Extracts from the Sudan Cotton Ordinance, 1912.

1. This Ordinance may be cited as the Cotton Ordinance, 1912.

2. In this Ordinance the Director of Agriculture means the Director of Agriculture and Forests, and includes any person duly authorised to act on his behalf.

7. (i) No person shall erect or use a ginning factory or permit the same to be used unless he holds a license from the Director of Agriculture.

(ii) The owners of all ginning factories existing upon the publication of this Ordinance shall be entitled to obtain a license upon application to the Director of Agriculture within three months from the publication of this Ordinance.

8. (i) Licenses shall be issued in accordance with conditions imposed or framed from time to time by the Governor-General in Council under Section 16, and for such periods as the Governor General in Council may from time to time decide. They shall be renewable at the expiration thereof unless there have been breaches in respect of the ginning factory of the provisions of this Ordinance, or of any regulations issued under this Ordinance.

(ii) A license may be revoked by the Director of Agriculture for breach in respect of the ginning factory of any of the provisions of this Ordinance, or of any regulations issued under this Ordinance.

(iii) A license shall not be transferable except with the consent in writing of the Director of Agriculture.

9. Every ginning factory shall at all times while working be open to the inspection of the Governor or of an Inspector of the Province, or an official duly authorised by the Director of Agriculture.

10. (i) Different varieties of cotton shall be kept separate previous to ginning, and shall be ginned separately.

(ii) The gins shall be carefully cleaned of all seeds of one variety before the ginning of another variety is begun.

16. The Governor-General in Council may make rules for the purpose of maintaining or improving the quality of cotton grown in the Sudan, and for the regulation of the working of ginning factories, and for protecting the health and safety of persons engaged therein, and in particular he may:—

(*a*) Prohibit the cultivation and export of cotton of inferior quality, or of any particular kind, or of all cotton other than specified kinds or qualities.

(*b*) Prohibit the export of unginned cotton.

(*c*) Regulate the import, distribution, or use of cotton seed, or prohibit the import, distribution, or use of cotton seed of inferior quality, or of any particular kind, or of cotton seed other than certain specified kinds or qualities.

(*d*) Make regulations for the sowing and use for other purposes of cotton seed from cotton ginned in the Sudan, and provide for the inspection of cotton seed and cotton ginned and unginned.

(*e*) Make regulations for factories, for the issue of licences under Section 8, for their inspection, and for the ginning, baling, and preparation of cotton and cotton seed.

(*f*) Make regulations with respect to the hours and conditions of labour of children and young persons in ginning factories.

(*g*) Make regulations for grading or classifying cotton, and for making it compulsory for cotton to be graded or classified by an official classifier, and for the marking of bales of cotton or parcels of cotton seed, and for the prevention of the export of cotton which is not graded, classified and marked.

(*h*) Make regulations requiring cultivators, owners and managers of ginning factories and others to furnish such statistics in connection with their business as may be determined.

(i) Fix penalties not exceeding a fine of £E.10 for contravention of any regulation.

17. Any person who in breach of this Ordinance or of any order or rule made thereunder:—

(*e*) Erects or uses a ginning factory without a licence contrary to Section 7,

(*f*) Refuses an authorised official access to any part of a ginning factory contrary to Section 9,

(*g*) Mixes different varieties of cotton or gins together different varieties of cotton contrary to Section 10,

shall be punished with a fine which may extend to £E.10.

Provided that no prosecution shall be instituted except with the previous sanction of the Governor or Director of Agriculture.

18. Any cotton or cotton seed in respect of which any offence under any section of or under any of the regulations made under this Ordnance has been charged or is suspected of having been committed, shall be liable to seizure by a magistrate, police officer, or customs officer, and cotton or cotton seed in respect of which any person has been convicted of an offence under any section of or under any regulation made under this Ordinance may by order of a magistrate of the first or second class be confiscated.

20. Offences may be tried by a magistrate of the first or second class and summarily or otherwise.

(*d*) The question of the publication of cotton prices in up-country markets is referred to in the report of the Indian Cotton Committee (para. 206). Agricultural Departments in the various Provinces have examined the matter in some detail and it was discussed last at the Board of Agriculture in January, 1924, and at the meeting of the Indian Central Cotton Committee in the same month.

The opinion formed by the Central Cotton Committee was that merchants and traders receive ample information as to market conditions both in India and Overseas. Daily reports of the movements of the Liverpool, New York and Bombay markets are published regularly, and many Bombay merchants obtain private cables and communicate important matters to their up-country clients. Similarly up-country market reports are regularly received by many Bombay merchants. Foreign cotton crop reports are also received regularly in Bombay by cable and published. Indian cotton crop

reports are published regularly in the Indian Trade Journal (by the Director-General of Commercial Intelligence and Statistics) and in the newspapers generally. Up to 1922 the All-India cotton forecasts were issued to the trade in the form of separate leaflets. These leaflets were found exceedingly convenient by the cotton trade and the Central Cotton Committee recommended that the publication of such leaflets should be re-introduced, but this has not been done.

The cotton grower is in a far less favourable position. During the early days of Punjab-American cotton cultivation the Department of Agriculture took considerable trouble to obtain and publish Bombay cotton prices, and also published calculations showing the corresponding local price of Punjab-American cotton in the form of *kapas*. There is little doubt that the step was then necessary, and indeed, through the medium of District Boards, cotton prices are still published in certain Punjab cotton centres.

Generally speaking, however, the Central Cotton Committee are of opinion that the most that should be attempted is the publication in up-country markets of actual Bombay prices, and are not in favour of attempts to publish up-country calculated local *kapas* and cotton prices, since these must depend on a number of fluctuating factors. The publication of Bombay prices (or to be exact, the prices of the appropriate hedge contract) would enable growers capable of utilising such information to follow the trend of the market: to attempt more than this would probably lead to confusion.

What the grower needs most is information about the rates prevailing in his nearest market. The results of our inquiry showed that wherever open markets exist (whether regulated or not), neighbouring cultivators do hear what the market rates are. Given proper market committees, more could be done in this direction.

It may be added that the East India Cotton Association at our request have promised to supply Bombay official closing rates by telegram to any up-country cotton market committee requiring such rates.

QUESTION 22.—CO-OPERATION.—(*b*) (i) It has come to our notice on more than one occasion that the advances made by co-operative societies to their cotton-growing members are inadequate. Our investigation into the finance of the cotton crop show that in many cases cultivators borrow both from their co-operative societies and from moneylenders. On the other hand, we understand that such institutions as the Bombay Provincial Co-operative Bank has often had considerable difficulty in gauging the requirements of co-operative credit societies and on occasion could have supplied larger funds than were asked for.

The difficulties are obvious therefore. On the one hand the closest scrutiny of the amounts of loans made to primary credit societies is necessary since the liability of members is unlimited, and each borrower's capacity to repay his loans promptly must be assured. On the other hand, the society is greatly weakened if its members also borrow elsewhere. But it must be recognised that cotton is a crop requiring a considerable amount of cash expenditure, firstly for weeding and then for picking, if the area is larger than can be managed by the cultivator's family. The investigations which we have carried out appear to indicate that, in the tracts studied, the need of the cotton grower for money as soon as his crop is ready is not so great as has been supposed. Nevertheless, in some areas at least it seems fairly certain that the grower requires money as soon as possible after the crop is picked, and that if he cannot obtain it from the society he will obtain it elsewhere on more onerous terms. We can only suggest that, especially in those areas where cotton is the principal or only cash crop, this question should receive the most careful attention of all co-operative financing agencies. Where any form of co-operative

marketing is being attempted, adequate finance of the grower is doubly important.

(*b*) (ii)—*Purchase Societies.*—We presume that this term includes societies for the supply and distribution of agricultural requirements, including seed-distribution societies. There is little doubt that the distribution of seed is admirably adapted to co-operative organisation, but it is necessary that the closest touch should be maintained between the Agricultural Department and such societies.

(*b*) (iii) Societies for the co-operative sale of cotton have made little headway in India so far and we consider that far more attention should be given to this matter. Several different types of organisations are being tried at present:—

(1) Societies which pool their members' produce, arrange for ginning and sell ginned (and baled) cotton.

(2) Societies which organise periodical auction sales of graded *kapas*—the sales being on individual account.

(3) Co-operative commission shops.

(4) Co-operative ginning and sale of members' cotton by seed-unions.

The first type is the only one which attempts to eliminate the small middleman entirely Several small societies of this type are working in the Surat district and, generally speaking, appear to be successful. It is clear however that this type of society demands skilled management and that if such societies are to extend, they will have to be grouped in order to maintain a central sale agency. A weak point at present appears to be that the societies have little real hold on their members. No sale society can continue to work successfully unless it can enter into contracts with the assurance that it can rely on the necessary supplies from members. If members sell their *kapas* otherwise than through the society, when they get a tempting offer from another buyer (and we understand that such cases are not unknown) the society will never establish confidence amongst large buyers. The experience of American co-operative cotton sale societies is that there must be a legally enforceable bond between the member and the society by which the member undertakes to supply a certain amount of cotton to the society, or all his crop if less than that amount. It appears that a bond of this description would not be possible under the present Co-operative Societies Act. If this is so, the question of amending the Act should be considered. It is useless for co-operative societies to attempt to replace the middleman unless they are assured of the necessary backing from their members, as well as the necessary financial resources. Societies of this type call for skilled management and for skilled salesmen. The grading of cotton into even running lots which will be attractive to large buyers is not a simple matter, and the sale of cotton is not a task for an amateur. The cotton trade generally has shown considerable sympathy with co-operative sale societies, especially when the societies deal in cotton of improved varieties, and several firms have gone out of their way to help such societies. But if any permanent good is to be done, such societies must be soundly organised and must not attempt more than they can carry out. A society in which members' *kapas* is pooled and subsequently sold is exposed to considerable trade risks. When the market is rising the society's task is easy and it is able to show considerable profits to its members. On a falling market the position is more difficult. If the society does not protect its stocks by hedge sales it may incur serious losses. On the other hand, for small societies under amateur management to attempt operations in the cotton futures market equally might lead to disaster. It is understood that the policy of the American co-operative cotton sale societies is to make no

hedge sales but to hold their cotton and market it in an orderly fashion throughout the year, the belief being that in this way, through the handling of large quantities, prices will average to the advantage of the grower. It is by no means certain that this supposition is true on a falling market even when the societies are well organised and affiliated to a central organisation controlling very large stocks which can be made a real factor in the market. In any case the absolute necessity of thorough organisation and skilled management is obvious.

(2) The second type of society is that at work in the Dharwar district of the Bombay Presidency, the two most prominent societies being the Gadag and Hubli societies. These societies have done excellent work in the past, as they have dealt mainly with the organisation of the sale of *kapas* of the two improved varieties which the Agricultural Department has introduced. The *kapas* is graded by Agricultural Department Inspectors and the auctions have been well attended in the past by representatives of both millowners and exporters. Growers obtained the advantages of honest weighments, a full knowledge of the rates paid and a full premium for the improved variety.

Recently, however, one society in particular has come into collision with the local middlemen and has been boycotted, with the result that buyers at the auctions have been few. The difficulty has been intensified by the falling off in the export demand for the Dharwar-American type.

The Central Cotton Committee took part in several conferences the object of which was to help the societies out of their difficulties. The immediate cause of the dispute appeared to be the provocative attitude adopted by the managers of the society. The main complaint was that, very unwisely, the society undertook the sale in their auctions, of non-members *kapas* and of *kapas* of other than the selected variety (Gadag No. 1). A subsidiary complaint was that the society refused to recover loans made by the *dalals* to growers whose cotton was sold in the auctions. The real cause of the dispute most probably was the fact that the society's operations had begun to affect the local brokers' business. It should be stated that both exporters and mill-buyers do much, if not all, of their up-country buying through local brokers. Unfortunately the same brokers also act as sales brokers for growers. Hence a dispute of the type described may easily wreck a society's auction sales.

This type of society has certain advantages; the risks carried are limited, sales on individual account are feasible until members are educated up to grading and pooling and it is possible to work up from relatively small beginnings.

To attract buyers, a society of this type must offer some definite advantages to induce intending purchasers to depart from their usual methods of business. Hence such societies are better adapted to the disposal of produce of a new variety than to the handling of an established type.

Co-operative Commission Shops.—In a number of markets used by cultivators it is the custom for the grower to deposit his *kapas* with a middleman for sale. The commission charged is often reasonable and the growers main complaint is that he is no match for the middleman when it comes to accounts and that he is frequently cheated both over rates and weights.

In some markets the *dalal* or *arhatiya* provides storage so that the grower is not obliged to sell on an unfavourable day. Some co-operative commission shops which undertake this type of business are under trial in the Punjab and there are a few in other parts of India and they should be able to render a very distinct service to the grower without undertaking heavy risks. Their weakness lies in the fact that once they arouse the opposition of local middlemen, with whom they must compete, they may be frozen out

of the market. Nevertheless they might do very useful work in those markets which are attended regularly by the representatives of big buyers, especially if they can provide warehouse accommodation.

Seed Unions.—These societies are primarily organised for the production of pure seed, which in the case of cotton involves ginning under supervision, and many of these societies make arrangements for the sale of lint for their members. They do not, however, touch the real question of cotton marketing.

General.—Whatever method of organisation be adopted a co-operative cotton sale society must be prepared to advance a considerable amount of money to the growers as soon as the cotton or *kapas* is delivered. It is understood that the co-operative sale societies in the Bombay Presidency advance 66 per cent. of the value of the *kapas* as soon as it is weighed over. It has also to be borne in mind that in some areas market-*dalals* advance money to growers before the cotton is delivered and often before it is picked. Hence it is essential that, either through co-operative credit societies or through the sale societies, the grower should obtain the finance he requires promptly otherwise he is likely to seek it from outside the Society.

The exact relations between the credit society and the sale societies may vary in different localities but it is clear that for any one locality these should be clearly defined and that the two organisations should work together.

In general it may be said that a much more detailed study of co-operative marketing methods is needed. In the case of cotton it must be recognised that the wholesale cotton trade is highly organised and that before new co-operative organisations are brought into being, the conditions under which they will have to work, and the directions from which they may expect support and opposition respectively, should be carefully thought out.

(*b*) (vi) *Co-operative cotton ginning factories.*—There have come to our notice several attempts to introduce the co-operative ginning of cotton, and though we have little information as to the results of such attempts, we would offer some general observations. At first sight co-operative ginning is an extremely attractive proposition. The capital required for a small factory is not large, the resulting control of seed is capable of being of great value to the Agreiultural Department and, provided that there are buyers for moderate quantities of ginned cotton which there are at many centres, the cultivator is likely to get a distinctly better price for superior produce.

But against this it has to be stated that ginning in small factories is almost invariably badly done and wherever small ginning factories are, numerous complaints of bad ginning are rife. The gins in small factories are frequently badly set and badly maintained and the cotton damaged during ginning. Hence if co-operative cotton ginning factories are started in future they should be of such size as will justify a proper staff and skilled management

QUESTION 23.—GENERAL EDUCATION.—(*a*) (1) The only observation which we desire to make in this connection is that there is insufficient organisation at present for attracting the best Science graduates of Indian Universities to agricultural research. The provision of a cadre of trained investigators in the country is a necessary step if agricultural research is to progress steadily. In their own limited experience the Central Cotton Committee have met with considerable difficulty in finding suitable research officers to take charge of new investigations, and to remedy this defect in some measure the Committee have instituted their system of research studentships. Under this scheme eight distinguished graduates of Indian Universities are selected

each year and given research studentships to enable them to work under experienced investigators so that they may learn the technique of agricultural investigation. The studentships are tenable for two years in the first instance, but frequently are extended. In some cases senior research studentships have been granted to promising men; in other instances students, at the expiry of their terms, have obtained appointments either in Agricultural Departments or in connection with the Committee's research schemes. As would be expected, a small proportion take up teaching work on the expiry of their scholarships.

The average graduate can rarely afford to take up research work at his own expense, and generally has to take whatever employment offers. However promising a man may be it can never be ascertained in advance that he will make a successful investigator, and there is bound to be a considerable wastage in any scheme of this kind. It may be expected, however, that a certain proportion of the men will develop into real investigators capable of original and independent work. A far larger proportion may be expected to become really useful research assistants, while the remainder, which should be small if the initial selection is carefully made, will at any rate have their scientific outlook considerably broadened.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(*b*) In answer to a previous question reference has been made to the investigations carried out by the Committee on the finance of the cotton crop with special reference to primary cotton marketing. After a preliminary attempt to obtain this information in other ways the Committee came to the conclusion that detailed village surveys provided the only means of getting at the real facts. In our opinion such investigations are most likely to produce results if they are directed to certain specific objects and are not made too broad in their scope. The best results are likely to be achieved if the actual village enquiries are made by Agricultural Assistants, or men of this type, with a knowledge of the area in which they are working. The framing of the questionnaire, the supervision of the enquiry and the discussion of the results, however, require men with a training in economics and in the method of conducting economic enquiries. The first requisite is to employ investigators who will understand the cultivator and secure his confidence; the second, to secure proper supervision of the work of the investigators and to see that they really understand what information is wanted.

(*c*) The results of the enquiries carried out by the Indian Central Cotton Committee on the finance of the cotton crop are described in the answer to Question 20.

QUESTION 26.—STATISTICS.—The existing statistics for cotton are the following:—

(1) The All-India crop forecasts published by the Director-General of Commercial Intelligence and Statistics.

(2) The provincial cotton forecasts, on which the All-India forecasts are based, published by provincial Departments of Agriculture.

(3) The sea-borne trade returns issued by the Director-General of Commercial Intelligence and Statistics giving cotton exports and imports. For trade purposes these are largely replaced by the weekly statements, compiled by arrangement with the Customs Department, by the Bombay and Karachi Chambers of Commerce.

(4) Monthly returns of Indian cotton consumed in Indian mills based on returns under the Indian Cotton Cess Act, compiled by the Indian Central Cotton Committee and published by the Director-General of Commercial Intelligence and Statistics and by the East India Cotton Association.

(5) Weekly returns of cotton pressed (under the Cotton Ginning and Pressing Factories Act) published by the Director-General of Commercial

Intelligence and Statistics, and also, so far as provincial returns are concerned, by Local Governments in their provincial gazettes.

(6) Weekly statements of arrivals of cotton in Bombay, published by the East India Cotton Association.

(7) Annual Statement of stocks as actually determined in Bombay on the 31st of August, published by the East India Cotton Association.

(8) In addition, the Bombay Millowners' Association publish figures for cotton consumption and stocks in mills based on voluntary returns.

(9) Prior to 1923 Provincial Governments collected and compiled provincial returns of rail-borne trade in important commodities, including cotton, and an All-India return was compiled and published by the Director of Statistics. These returns were discontinued, but, so far as cotton is concerned, the Government of India, on the recommendation of the Central Cotton Committee, has agreed to re-establish them and to publish All-India figures. These returns show the movement of cotton between certain well-defined trade blocks.

The Central Cotton Committee entirely support the recommendations for the improvement of agricultural statistics made by the Board of Agriculture in 1924. In their opinion the cotton forecasts and the final statistics of cotton production are faulty—partly through lack of independent trade statistics to enable the basis of the estimates of production to be tested, and partly because the statistical staffs in the various Agricultural Departments are quite inadequate. Generally speaking, the published figures for the area under cotton are reasonably accurate, so far as British India is concerned. The same cannot always be said of the estimates of yield. The re-introduction of rail-borne trade returns and the provision of weekly statistics of cotton pressed provide two very valuable independent checks on the total quantity of cotton produced in a Province or in a particular trade block. With the aid of these it should be possible for the Agricultural (or other) Departments responsible for the preparation of cotton forecasts to detect serious errors and to revise the basis of forecasts. The estimates of production involve a knowledge of the three factors, viz., area, standard outturn and seasonal condition factor; it is in regard to the third of these factors that there is the greatest difficulty. The second factor is capable of actual determination by means of a sufficient number of crop-cutting experiments, but if these are to be of any value they must be carried out year after year and in sufficient number to be capable of proper statistical interpretation. It is impossible for the Agricultural Departments to do this adequately with their present staff. Staff and money are required for crop-cutting experiments, and every Director of Agriculture requires proper statistical staff to deal with the results.

The accuracy of the third factor can only be improved by constant attention to the correct interpretation of the condition reports obtained from village accountants. This requires constant study by a trained statistical staff, and we support the recommendation of the Board of Agriculture that every Director of Agriculture should be provided with a qualified statistician.

It is impossible to lay too much stress on the importance of adequate and accurate statistical information on the progress of the cotton crop. Excessive speculation leads to fluctuating markets, which almost invariably prove to be disadvantageous to the grower. The timely supply of accurate information is a most valuable means of checking excessive speculation, and indeed is absolutely essential to the early marketing of the cotton crop.

Arrangements for the publication of Agricultural Statistics.—The Central Cotton Committee are consulted from time to time on the suitability of the form in which cotton statistics are at present published, and they are in a position to bring possible improvements to the notice of Government at any

time. We venture, however, to make one general suggestion. When the question of the compilation and publication of statistics is under discussion it is desirable that a very clear distinction should be made between the statistical information for the use of the commercial community and what may be called permanent statistics which, though not directly utilised by the trade, form the basis of the information supplied to them. When, for example, the question of the abolition or retention of the internal rail-borne trade returns was referred by Government to certain commercial bodies, the general opinion was expressed that these statistics were published much too late to be of any practical value to the trade. The point was overlooked that these statistics were of great importance in the checking of the cotton forecasts. The rail-borne trade returns eventually were re-introduced, but, unfortunately, a gap had been created in a very valuable set of statistics extending over a long series of years. This could have been avoided had the distinction mentioned above been clearly kept in mind.

APPENDIX I.

The Cotton Transport Act and the Cotton Ginning and Pressing Factories Act.

Cotton Transport Act.

One malpractice which caused much loss of reputation to some of the best Indian cotton in the past was the importation into cotton areas with a high reputation of inferior cotton either for mixing with cotton of superior staple or for actual substitution. Some of the instances of fraud were of a most bare-faced nature as fully pressed bales were even railed to stations with a good name and re-booked after the end gunnies had been changed in order that the cotton might be offered under a misdescription. Importation of inferior kapas for mixture at the gins led to even worse results as it resulted in the supply of mixed seed to cultivators. The Act enables any Local Government, with the consent of its Legislative Council to schedule for protection any cotton-growing area within the province and to forbid the importation of any form of cotton into that area by road, rail, river or sea (or by any one or more of these means of transport) except under license. Licenses are only issued to meet genuine manufacturing requirements. The Act enables the railway authorities at any despatching station to refuse to accept cotton for a scheduled station unless covered by the necessary license. The giving and taking delivery of prohibited cotton at a scheduled station has been made a penal offence. In practice the real sanction to the Act lies in the fact that if cotton is sent to a scheduled station without the necessary license the Railway Company is authorised to rail it back to the despatching station and to recover all charges from the consignor. Actual prosecutions have been extremely few and the Act has proved to be of great value.

For successful working certain conditions must be fulfilled. Firstly, the control of road transport on any extensive scale is a difficult matter, and the zones chosen for protection should possess good natural boundaries and must not be too small. Secondly, in notifying an area due consideration must be given to the natural trade routes and the position of markets. Thirdly, the zone should be fixed with due reference to the Agricultural Department's policy in the introduction of superior varieties, and the full benefit of the Act will only be obtained in those cases where a definite policy for the growing of one improved variety over a large area has been adopted. On the other hand, once the Cotton Transport Act is put into force the Agricultural Department's seed distribution policy should not lightly be changed.

The Indian Central Cotton Committee.

Cotton Ginning and Pressing Factories Act.

Malpractices in cotton ginning factories in India are unfortunately extensive; still while much damage is caused by negligence not necessarily accompanied by any fraudulent intention. As a result, the value of cotton to the consumer, whether an Indian or a foreign mill, is considerably reduced and in consequence the price received by the grower. As far back as 1829 and again in 1863 by means of the Cotton Frauds Acts attempts were made to prevent such malpractices by a system of inspection; these broke down, the Act being finally repealed in 1871. The Indian Cotton Committee of 1917-18 recommended that the licensing of ginning and pressing factories should be reintroduced and it is interesting to observe that such a system is in force in one Indian State (Rajpipla) at the present moment. The problem was to find a method of preventing malpractices without excessive official intervention and as it was ascertained that the general opinion of the cotton trade was that, given means of identifying the origin of faulty cotton, they themselves could take action to secure improvement the Indian Central Cotton Committee did not recommend the wholesale introduction of licensing of gins and presses, but recommended legislation on the line of the Act now in force. A further recommendation of the Central Cotton Committee that the bill should contain an enabling clause allowing Local Governments to introduce licensing where found necessary was not adopted. The present Act requires all bales of cotton to be marked with a special mark showing the factory in which pressed, the season and a serial number identifying the bale. Both pressing and ginning factories are required to maintain full records of the ownership of all cotton ginned and pressed. The Act also provides for the use of proper weights and measures and for certain minimum structural requirements in ginning and pressing factories. Weekly returns of all cotton pressed have been made compulsory by the same Act.

APPENDIX II.

Publications of the Indian Central Cotton Committee.

Annual.

Annual report of the Committee including Annual Report of the Technological Research Laboratory.

Half-yearly.

Abstract proceedings of the Committee (not for sale) supplied to the Government of India and Local Governments, Agricultural Departments, Provincial Cotton Committees, Chambers of Commerce, Millowners' Associations, Cotton Trade Associations, &c., the Empire Cotton Growing Corporation and the British Cotton Growing Association.

Bulletins.

Statistical Bulletins—

1. The demand for various types of Indian Cotton—1922.
2. The demand for various types of Indian Cotton—1924.
3. The demand for various types of Indian Cotton—1926—in preparation.
4. Report on the present position of Cotton Research (issued as abstract Proceedings).
5. Spinning Test Reports on standard cotton—
   No. 1—1925.
   No. 2—1926.

6. Descriptive pamphlet—Technological Research Laboratory.
7. Some recent important speeches in connection with the improvement of cotton growing in India.
8. Objects of the Indian Central Cotton Committee.
9. Clean picking and marketing of cotton.
10. Explanatory pamphlet—The Bill for the regulation of Gins and Presses.
11. Areas under improved varieties of cotton.

Abstracts.

Cotton abstracts ares published from time to time in the Agricultural Journal of India.

No scientific papers on the research work carried out with the aid of the Committee's grants have yet been published. The intention is that such papers will be published in recognised scientific journals, or in the Pusa series of Memoirs, and not separately.

Bombay Cotton Annual.

The issue of a publication of this nature was recommended by the Indian Cotton Committee (*vide* Appendix 6, paragraph K). Prior to the formation of the Indian Central Cotton Committee the Cotton Contracts Board, Bombay, started the publication of the Bombay Cotton Annual which was subsequently taken over by the East India Cotton Association. The Indian Central Cotton Committee is consulted annually on the matter to be published and supplies the agricultural notes, some of the cotton statistics and special articles for inclusion in the Annual.

APPENDIX III.

PROGRESS OF THE INDIAN COTTON CROP, 1915-1925.

By Varieties and Length of Staple.

Varieties.	Average during the 3 years 1915–18 (in '000 Bales.	Estimated crop during 1924–25 (in '000 Bales.)	Per cent Increase.
Short Staple (under $\frac{7}{8}$ inch) :			
Oomras (excluding Hyderabad Gaorani)	1,631	1,970	—
Dholleras	472	606	—
Broach (part)	93	97	—
Bengals...	687*	1,042	—
Comillas, Burmahs, etc.	79	112	—
Coconadas	37	54	—
Total, Short Staple...	2,999	3,881	29·4
Long Staple ($\frac{7}{8}$ inch and over) :			
Comras-Hyderabad Gaorani (Bani)...	168	450	—
Broach (part)† Surat-Navsari, mostly 1027 A.L.F. (staple 1 inch) ...	—	122	—
Broach, others...	190	114	—
Kumpta-Dharwar† Gadag No. 1 (staple 1 inch)	—	15	—
Kumpta-Dharwar† Dharwar No. 1 (staple $\frac{7}{8}$ inch)	—	20	—
Kumpta-Dharwar, other Kumpta and Dharwar-American...	282	308	
Westerns, and Northerns—Sircar No. 14 (staple $\frac{15}{16}$ to 1 inch)	—	3	—
Westerns, Sircar No. 25 (staple $\frac{7}{8}$ inch)	—	6	—
Westerns, other Westerns and Northerns	193	345	—
Tinnevellies including Karunganni-Karunganni (staple $\frac{7}{8}$ inch) ...	40	60	—
Tinnevellies, other Tinnevellies. ...	66	97	—
Salems, and Cambodia — Irrigated Cambodia (staple 1 to $1\frac{1}{8}$ inch) ...	101‡	139	—
Salems, other Salems and Cambodia	78‡	69	—
Punjab and Sind Americans (staple $\frac{15}{16}$ to $1\frac{3}{8}$ inch)	43	359	—
Total, Long Staple...	1,161	2,107	81·5
Grand Total ...	4,160	5,988	43·9

* Average for five years ending 1914–15.

† Staple greatly improved as a result of the Cotton Transport Act, and now far more uniform.

‡ Average for 1916–18. Revised figures reported by the Director of Agriculture, Madras.

APPENDIX IV.

Technical Note on the various Provincial Research Schemes financed by the Indian Central Cotton Committee.

Bombay Research Schemes.

The three officers in charge of the investigations and some of the technical assistants have been placed on special duty by the Government of Bombay, their salaries being met from the Committee's grants and their substantive posts temporarily filled by departmental promotions. The other members of the staff have been employed on short term contracts.

Surat Physiological and Entomological Research Schemes.—These two schemes are closely related. The object of the former is a study of bud, flower and boll shedding and of means for reducing the consequent loss of crop. As the *Earias* bollworms are responsible for a considerable amount of shedding it is convenient to discuss the two schemes together. It has been ascertained that of the total flower buds produced only some 10 per cent. produce mature bolls and that of the flowers that actually open only about 40 per cent. result in mature bolls. It has also been shown that successful flower and boll production is limited to a comparatively short period. Thus, in 1924 flower buds were formed from 1st September to 30th December, but only during a period of about seven weeks from the end of September did any material production of flowers (30 per cent. of the buds) take place. Similarly flowers which opened after the end of December produced an insignificant proportion of bolls. During the active period of flower production, about 50 per cent. of the flowers produced mature bolls and over the whole flowering period about 43 per cent. It appears that the *Earias* bollworms are responsible for a loss of about 30 per cent. of flower buds which only represents one-third of the total shedding. On the other hand a loss of 30 per cent. of flowers and bolls from this pest is distinctly significant. Further work is in progress from which it is hoped definitely to ascertain the loss which takes place when normally-grown cotton plants are protected from *Earias* attack. The physiological work has definitely shown that shedding is not due either to disease or to defective pollination of the flower. Climatological data, including rainfall, humidity, air and soil temperatures, evaporation, cloud and soil mixture have been carefully recorded, as it is likely that the main factors determining shedding are environmental. Most of the work has been carried out on one "pure line" selection from the local cottons, but other strains have been under observation also. The work on the *Earias* bollworms has elicited a good deal of new information on the life history of these three insects and of their parasites. Control measures require very careful study, as, owing to the very short time between the harvesting of one crop and the sowing of the next, the natural carry-over is large.

Dharwar Research Schemes.—The two research schemes at Dharwar deal with plant breeding work for the improvement of the staple of the Bombay Upland cottons and a mycological study of the cotton with disease respectively.

The first scheme deals with the working out of a cross between a local strain of American Upland and Sea Island. The F^4 generation is now under observation, so that it is impossible to say more than that the cross is promising.

The second investigation is a study of the cotton wilt disease, which is the only generally important disease of cotton in India. At Dharwar the problem is being attacked from three aspects:—

(1) The isolation by selection or the creation by hybridisation of immune or less susceptible strains. The Bombay Agricultural Department's Cotton Botanist at Dharwar has already made considerable progress with the plant-breeding side of the work. The mycological staff provided from the Committee's grant co-operates in testing strains for immunity.

(2) Work on the fungus itself. There is a good deal of evidence that at Dharwar the fungus (Fusarium) is definitely causative. Work on the conditions of growth of the fungus and on the method of infection of the plant was started first.

(3) Work was also started later to determine the conditions under which cotton suffered seriously from the disease (which is spasmodic in character) and whether the loss caused can be reduced by indirect methods. The work is still in progress.

Sind.

The Lloyd Barrage canal system eventually will revolutionise cotton growing in Sind as perennial irrigation will replace the present uncertain water supply from inundation canals, and a large additional area will come under irrigation. It is estimated that the irrigated cotton area will reach eventually some 700,000 acres. In consultation with the Indian Central Cotton Committee the Government of Bombay has provided a new research station at Sakrand for the investigation of the many problems arising from this radical change in the agricultural system of Sind. The station is provided with a perennial water supply by pumping from a lake, thus enabling canal conditions to be reproduced in advance of the completion of the Barrage canals. The Indian Central Cotton Committee has given a grant of Rs.20,000 per annum for a period of five years to provide a plant physiologist, staff and equipment for research on cotton physiology which they believe to be of extreme importance to cotton-growing in new canal areas. The staff has not yet been appointed.

Madras.

Herbaceum Botanical Research Scheme.—This scheme provides for plant-breeding work on the Herbaceum constituent of the various Madras cottons, especially of the Northerns and Westerns type. (Many Madras cottons are mixtures in varying proportion of G. Indicum, G. Herbaceum and natural crosses.) The types under study have a particular value for those areas where the rainfall is low or uncertain, and work has been directed to the study of "unit species" and the isolation of strains of superior staple by pure line selection. During the current season some strains will reach the field test stage. The staff for the scheme has been partly obtained on deputation from the Madras Department of Agriculture and partly on short term contracts.

Pempheres and Physiological Scheme.—This scheme, work on which will start very shortly, provides for a Physiological Botanist and a Biochemist with botanical, chemical and entomological assistants for the study of a group of problems. Work on bud, flower and boll shedding has been carried to a certain stage by the Cotton Specialist to the Madras Government in the course of other work and the results published; this work will be continued and extended.

(2) The cotton stem weevil, "*Pempheres affinis*," threatens to be a limiting factor on cotton production at Coimbatore, and there is a risk of its becoming a major pest in other parts of India. The life history has been worked out already, but no direct control measures appear possible. An important line of enquiry is the resistance to attack and power of recovery shown by certain strains of cotton, and investigations from both the botanical and chemical aspect have been arranged for. Concurrently certain further entomological data will be collected with special reference to the utilisation of the Madras Pest Act against this insect. The staff for this scheme is now being recruited.

United Provinces.

The pink bollworm is by far the most important insect pest of cotton in many parts of India, and is most destructive in the United Provinces and

the adjoining parts of the Punjab, where, as in Egypt, long cycle larvæ are responsible for most of the carry over from season to season. The Government Entomologist, United Provinces, had already made this a major item of his research programme. The Indian Central Cotton Committee provided two non-recurring grants in the first instance to provide insect proof cages, and subsequently a recurring grant and a further non-recurring grant, for special experiments in seed control and disinfection. An additional grant has recently been sanctioned to enable an additional Entomologist (one of the Committee's Research Students) to be employed for the further development of this work. The preliminary results obtained indicate that the loss of crop is at least 20 per cent., whilst the crop that is secured is very seriously lowered in quality. It has been calculated that effective control of the pest would add anything from 25 to 60 per cent. to the cash value of the crop. Results indicate that seed treatment alone would enable a very considerable reduction in the bollworm population to be effected provided that such treatment can be organised on sufficiently extensive a scale. Field experiments to confirm this result are now in progress, and further data on flight distribution are being accumulated. The practical point to be determined is whether the treatment of all cotton-seed (in the ginneries) would be sufficient or whether the compulsory removal of the old cotton crop before a certain date is also essential. Legislation may be necessary eventually, and it is of the utmost importance that the scientific data should be complete.

Punjab.

Botanical Research Scheme.—The earlier work of the Punjab Agricultural Department has led to the establishment in that province of nearly a million acres of Punjab-American cotton (acclimatised Upland American) of about 1 inch staple with canal irrigation and producing some 300,000 bales of cotton annually. This is the largest single addition to the Indian supply of medium-stapled cotton. The whole area is canal-irrigated and the average yield relatively high. The area for the current year is 1,066,000 acres and the estimated yield 328,000 bales.

Various difficulties in regard to both yield and quality in certain years led the Indian Central Cotton Committee to the conclusion that a special cotton research staff was required to deal with the various problems of American Cotton-growing under canal colony conditions. A non-recurring grant of Rs.29,300 was made which provided a special field laboratory and apparatus The recurring grant of Rs.45,000 provides for the Cotton Research Botanist, Botanical Assistants and for laboratory contingencies. The Punjab Government have provided a special plant-breeding area on the Agricultural College estate and a farm of 200 acres for testing and multiplication of strains and for field experiments. The Punjab Government have also provided a gazetted agricultural officer as Chief Assistant to the Cotton Research Botanist and meet all cultivation charges. They have also provided a good deal of initial expenditure connected with the scheme. An exception has been made in this instance and the Cotton Research Botanist has been recruited by the Committee and lent to the Punjab Government. Mr. Trevor Trought (recently Senior Botanist for the Ministry of Agriculture, Egypt, Cotton Research Board) was appointed Cotton Research Botanist, Punjab, in August 1925.

Punjab Entomological Research Scheme.—Working under the Government Entomologist, Punjab, one of the Committee's Research Students showed that the pink boll worm though at one time reported to be of negligible importance in the Punjab is now a major pest in the South-East Punjab and present in appreciable numbers, though only a minor pest at present, in the canal colonies. A grant has been made for an investigation of the factors which limit the spread of the insect under canal colony conditions

and work has been started this year, the Research Student referred to having been appointed Assistant Entomologist for the scheme. The investigation is complementary to the work at Cawnpore and its importance lies in the fact that should this insect become a major pest in the canal colonies (as it is in the United Provinces and South-East Punjab at present) the yield and value of the Punjab-American crop would be very seriously reduced.

Central Provinces and Berar.

The annual grants to the Central Provinces Department of Agriculture have provided for two Research Schemes, *viz.* :—

(1) A botanical investigation of the Central Provinces and Berar cottons with special reference to the improvement of the staple of the Oomra type.

(2) A study of cotton wilt in the Central Provinces and Berar.

The Committee's grant has enabled the Economic Botanist to Government Central Provinces, to be relieved of other work and to devote the whole of his time to cotton research of which he had previous considerable experience. The assistants required have been placed on deputation by the Local Government and are paid from the Committee's grant. The Local Government also placed at the disposal of the Economic Botanist for Cotton the Akola farm in Berar with an adequate annual grant for unkeep and cultivation expenses, a plant-breeding area, laboratory, &c., at Nagpur and certain facilities on other farms. A complete survey of the Oomras cotton is in hand and considerable progress towards the production of superior types has been made. The Oomras tract is the largest homogeneous cotton tract in India the general history of which has been the steady replacement of cottons of superior staple by inferior but hardier types and the reversal of this process will only be achieved as the result of thorough and patient experimental work.

(3) The cotton wilt investigation is being carried out by the Mycologist to Government, Central Provinces, and the Committee's grant provides for two assistants and for apparatus and contingencies. Preliminary results indicate that the course of this disease in the Central Provinces and Berar is distinctly different to that in the Karnatak and the problem has been attacked from the physiological aspect. The results so far are not conclusive.

Burma.

A small non-recurring grant of Rs.3,000 has been made for apparatus for the examination of the cotton fibre and an assistant from the Burma Agricultural Department is at present under training in the Committee's Technological Laboratory in the methods of fibre testing now in use there. The officers carrying out plant-breeding work on cotton in Burma are at a disadvantage owing to the great distance from Bombay and on the return of the assistant now under training part of the initial work on the fibre characters of Burmese cottons will be done locally.

General.

It should be mentioned that the above summary relates mainly to the position of these research schemes when last renewed by the Committee in July, 1925, for most schemes. At the time of writing the reports for the current season have not been received.

Mr. B. C. BURT, M.B.E., B.Sc., I.A.S., Secretary, Indian Central Cotton Committee.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH (*a*) (i) the experience of the Central Cotton Committee is that, so far as the cotton crop is concerned, there is need for a much greater amount of scientific research than can be carried out or financed by Local Governments and Provincial Agricultural Departments with their present resources, and it was this fact which led to the levy of a cotton cess to provide for research work on cotton.

An account of the position of research work for the improvement of cotton growing is given in my "Memorandum on the History and work of the Indian Central Cotton Committee" and in the report on "The present position of Cotton Research in India," which have already been submitted to the Royal Commission. Briefly, the Indian Central Cotton Committee has found it necessary to establish two central research institutes—one for cotton technology, the other for botanical and agricultural research—and also to finance additional investigations in the various Provinces. The research grants made to provincial Departments of Agriculture have been used mainly for staff and equipment, land and buildings and other facilities being provided by the local Agricultural Departments. In a few instances staff has actually been appointed by the Committee, but in the majority of cases the staff has been appointed by the Local Government. Such work in no way competes with but supplements the work of provincial Agricultural Departments.

The Administration Reports of the various Departments of Agriculture indicate that, on the whole, the cotton crop has received a very fair share of attention. This being the case, it is reasonable to assume that the position in regard to other staple crops is similar to that of cotton, and that additional research provided for by a central organisation of some kind is needed and would be welcomed. An essential feature of the research work financed by the Central Cotton Committee is that all research projects are examined by a Research Sub-Committee which includes a number of agricultural officers themselves engaged in cotton research, representatives of the grower and of the cotton trade.

It is suggested that more rapid progress might be made with agricultural research if the organisation were less geographical and were based to a greater extent on the crop (or group of crops) under investigation. The boundaries of, the various large tracts devoted to the various important crops do not coincide with provincial boundaries, and no province is even approximately homogeneous from an agricultural standpoint. Hence the organisation of research mainly on a provincial basis must result either in duplication of effort and added expense or in a considerable amount of work remaining undone. It is the latter objection which is the important one. Duplication of research work in itself is not a disadvantage; on the contrary, so far as funds permit, the greater the number of independent investigations the better.

It is not suggested that the exact form of organisation which has been developed for cotton would be entirely suitable for other crops and other problems. But it is clear that the association of the commercial community with work of this nature is of the greatest value and that the co-operation of representatives from the various Provinces in securing the carrying out of a definite programme of research is a very great advantage. It may be stated also that the existence of a special research fund, unhampered by the limitations of annual Government budgets, is a factor of great importance. Once a research policy has been adopted the sole question should be whether money is needed and whether it is being spent in the best way.

The delay in the provision of funds which annual budget allotments necessitate does not make either for effective working or for real economy. On the other hand, in the administration of such research funds, the strictest scrutiny of expenditure and adequate audit control are both justified and necessary.

It is at once admitted that Provincial Governments during the last five years have not been backward in allotting funds for agricultural improvement and development. Generally speaking, though with exceptions, my impression is that money has been more readily granted for extension and development work than for research. It seems obvious that if agricultural research is to progress at the rate which the prosperity of the country demands some share of the burden must be borne by central revenues. I have been privileged with unusual opportunities of seeing something of the work of a number of Departments of Agriculture, and my impression is that the development of their earlier successes absorbs most of the resources of the departments, and that they have neither the staff nor the funds adequately to undertake the many problems still calling for investigation.

(*b*) The Indian Central Cotton Committee's report on the present position of cotton research in India indicates the gaps that exist and the attempts made to fill them. It is necessary to say in qualification of this statement that the Committee has definitely ruled out of consideration a number of questions of purely provincial or local importance, having adopted the principle that it will only finance research on problems of more than provincial importance. For example, it was brought to the notice of the Committee that there was a real need for the more thorough study of cotton soils and of cotton fertilisers, but such investigations were considered to be matters entirely within the province of provincial Departments of Agriculture. In some instances the Committee felt obliged to refuse applications for grants for the investigation of minor problems, although they were in sympathy with the work proposed.

It is my personal opinion that far too little attention has been devoted to soil and plant-nutrition problems, and that the present organisation, expert staff and financial provision are equally inadequate for the work waiting to be done. It is easy to see how this position arose. In the early days of the Agricultural Department in India, the limited number of agricultural officers employed found themselves faced with an unlimited field of work. It was speedily ascertained that no immediate results would be obtained from attempts to introduce artificial manures. On the other hand, a raising of the general standard of cultivation by simple means and by the introduction of improved varieties of crops appeared to be a primary necessity, and this rapidly absorbed all the resources of the Department. Excellent work on soil chemistry has been done at Pusa first by Leather and later by Harrison and some fundamental work in soil bacteriology, but only the fringe of the problem has been touched. Many soil problems admittedly are local, and could be tackled by provincial Agricultural Departments if they had the money and staff. But the general problems associated with the semi-arid types of soil common in India, differing widely as they do from those of temperate countries, are so important and so fundamental that there is a need for one or more central research stations concentrating on such problems. A strong Soil Science section at the Pusa Research Institute should be able to do much to elucidate the chemistry, physics, and bacteriology of the silt soils of Northern India; the problems of the black soil areas are so distinct as to require study at a separate station. In this connection it may be remarked that the application of recent advances in colloid chemistry may afford means of elucidating some of the principles underlying successful soil management.

Another matter which has received insufficient attention is the study of the technique of field experiments. Whether it be in the testing of new varieties of crops, of new methods of cultivation, or of fertilisers, the need for accurate experimental work is obvious. More attention is required both to the determination of the error of field experiments and to the devising of means to reduce experimental error to a minimum.

Experimental work on the improvement of agricultural implements also needs more attention. Most Provinces now have Agricultural Engineers, and these officers have done much successful work in providing improved means of irrigation, especially from wells and in connection with power-driven machinery. The designing of improved cultivating implements has received less attention.

(*c*) The Indian Central Cotton Committee was impressed with the fact that until recently comparatively little work was in progress on either of the following problems:—

(*a*) The physiology of the cotton plant.

(*b*) The water requirements of the cotton crop.

(*c*) The study of the root system of the different types of cotton.

Much has been done by Agricultural Departments (and much remains to be done) in the improvement of crops by the production and introduction of improved varieties, but environmental factors have been much less studied; this aspect of crop improvement requires much more serious attention than it has received in the past.

Plant diseases have been studied too exclusively from the pathological aspect, and though a good deal of spade work has been done in the systematic study of disease organisms, the actual practical results have been comparatively few. In the case of the cotton-wilt disease, for example, it is not a complete solution of the problem to recommend the rotation of crops or the substitution of resistant for susceptible varieties. Accurate knowledge is required of the environmental conditions which lead to serious loss from this disease. If the production of resistant varieties is the only solution the problem confronting the plant-breeder, who is attempting to secure improvement in other directions also, is immensely complicated, and at least an attempt should be made to define the characters which accompany disease-resistance and to show whether such disease-resistance is specific or associated with other characters. But the fact that this disease, though widely spread, is only of economic importance in certain tracts points to the possibility of environmental factors being the true determining cause of crop loss even though the fungus be definitely causative of the disease. The Central Cotton Committee is now financing two investigations on the wilt disease of cotton, and it is only referred to here as an example of the limitations of the classical methods of mycological research.

The water requirements of the various major crops is a subject on which little accurate information is as yet available. In the older canal tracts the irrigating limit seems to have been reached, and crop production per unit of water needs almost as careful consideration as crop-production per unit of land. In many tracts an extension of irrigation can only be achieved by economy both in distribution and application. Since the former is likely to involve additional capital expenditure it must be justified by increased efficiency in crop-production, and hence both considerations call for accurate knowledge of the water requirements of the major crops. Nor is this the only aspect of the question. The over-lavish or untimely use of irrigation water frequently causes as much loss of crop as an actual shortage whilst, on the other hand, in canal colonies (where the rainfall is comparatively scanty) there are critical periods in

the growth of the crop and if irrigation is to be really effective water must be forthcoming at such times.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) By far the most successful method of introducing agricultural improvements is by means of well-organised demonstrations on cultivators' own fields, and it is now generally accepted that such local demonstrations should form the basis of the Agricultural Departments' propaganda work. To achieve the best results the demonstrating staff should be well trained and, whether the improvement introduced is an improved crop, an improved implement or the use of a new manure, the necessary supply service to back up the demonstrations should be thoroughly organised. Where a change in agricultural practice is being introduced a longer period of demonstration is needed than when it is desired to popularise new seed or a new implement. In my experience as a Deputy Director of Agriculture I found district farms of the greatest value in connection with propaganda work. Such farms can be made self-supporting and cost Government little or nothing. They form a convenient centre for the distribution of seed, &c., and materially assist in the organisation of the seed-supply of an improved crop; they are also of value for the local testing of improvements worked out on the experimental farms proper. The district farm is made the headquarters of the Superintendent responsible for work in the district and of his staff of assistants and provides a means of training demonstrators.

(*b*) The effectiveness of field demonstrations is largely a matter of staff and money, but a thorough knowledge of the needs of individual districts is essential if the best results are to be secured. Until 1921, at any rate, the average circle in charge of a Deputy Director of Agriculture was far too large and the staff at his disposal in each district much too small. I consider it essential, when any important agricultural improvement is being introduced into a district, that every possible source of non official assistance should be thoroughly exploited. Much can be done through the medium of co-operative credit societies even when such societies do not themselves undertake the actual working of any part of the scheme. The assistance of cultivating proprietors, and in certain districts of large landholders who themselves cultivate part of their estates, is extremely valuable, whilst in some instances important assistance can be obtained from the District Boards. In the past I have received much assistance from Court of Wards estates. Of primary importance is the personality of the Agricultural Assistants responsible for demonstration work The best of such assistants secure the confidence of the cultivators to a remarkable degree.

The value of other forms of propaganda varies greatly in different districts and in different parts of India. In some cases I have found annual District Agricultural Shows, especially when combined with a District Agricultural Conference, of real value. Constant touring by Deputy Directors, Assistant Directors and Divisional Superintendents is also of very great value, not only because it ensures the demonstrating staff being kept up to the mark but because such visits are appreciated by cultivators.

(*c*) My experience is that once a single agricultural improvment has been successfully introduced cultivators are quite ready to adopt other suggestions, and voluntarily come to the staff of the Agricultural Department for advice and assistance. The difficulty often is to comply with the requests for assistance rather than to induce cultivators to adopt suggestions.

(*d*) Probably the most striking instance of successful demonstration work in my old circle in the United Provinces was the successful introduction of the Pusa wheats. The methods of demonstration adopted were those indicated in the preceding paragraphs, combined with very

careful organisation of the seed supply. As an example of a general rise in the standard of agriculture, I should like to mention the Hardoi district of the United Provinces, where the introduction of irrigation by power pumping from tube-wells and of improved varieties of sugarcane and wheat, combined with improved cultivation (and in the case of the former crop accompanied by the use of oilcakes as manure to a considerable extent), almost revolutionized the agriculture of a considerable portion of the district. Fuller details have doubtless been supplied by the United Provinces Agricultural Department. In this district the assistance of both co-operative societies and cultivating proprietors was enlisted. Work centred about the district demonstration farm, which was run in co-operation with the District Board.

QUESTION 4.—ADMINISTRATION.—(*a*) In answer to Question 1, it has been suggested that the Government of India might, with advantage, make itself responsible for a considerable proportion of the additional agricultural research work which is needed. The introduction of agricultural improvements into actual practice necessarily must be done by provincial agencies. But the Government of India might usefully take part in bringing the work of the Agricultural Departments to the notice of the educated classes in India, so as to foster an enlightened public opinion on matters connected with agricultural development. This might be done through the medium of some such organisation as an enlarged and representative Board of Agriculture. The same organisation might deal with scientific and popular agricultural publications, a matter which is referred to in more detail in answer to Question 26.

The organisation of the Indian Central Cotton Committee has been fully described in the memorandum on the history and work of the Committee. It is suggested that, for the more important staple crops, there is considerable advantage in an organisation of this character. The improvement of agricultural products is so bound up with questions of market organisation and other trade questions that the consideration by a central committee of all matters connected with a single crop can but be of practical value. But it should be stated that the Indian Central Cotton Committee was constituted after the general position of Indian cotton growing and marketing had been thoroughly investigated by a touring Committee (the Indian Cotton Committee of 1917-1918). Consequently, the present Committee started its work with many of the immediate problems clearly stated and with a knowledge of the functions performed by existing organizations; thus its own constitution and organization could be planned with special reference to the work before it. Similar surveys may prove to be desirable before central organizations to deal with other crops are attempted.

More generally, it may be said that India is moving towards some form of Federal Government, and one can hardly fail to be impressed by the fact that in the United States, where this form of Government is very highly developed, the Federal Government takes an extremely active part in agricultural development. The various States are independent and maintain their own Agricultural Departments, but the Federal Department, which is the strongest Agricultural Department in the world, makes itself responsible for the study of all major problems, and makes grants and lends officers to individual States for special work. While it is not suggested that any attempt should be made to copy this form of organization in India, I consider that it represents the correct attitude of a Central Government towards agricultural development, and would deprecate any suggestion that because agriculture has become a transferred subject in the Provinces the Government of India should restrict their efforts to the maintenance of existing central research institutions.

The Board of Agriculture in India as at present constituted.—There is little doubt that this Board fulfilled a most valuable function during

the early days of the Department of Agriculture. Administration was then more centralised and the Government of India were in a position to give effect to the recommendations of the Board. All Agricultural Departments were feeling their way and the interchange of opinions was exceedingly helpful.

As time went on, the Board, very naturally, discussed more general questions and indicated lines for future development and quite a number of well-considered sound recommendations for the further development of agricultural research and for the improvement of agricultural statistics were made which unfortunately have not yet been acted upon. Gradually, a sense of unreality crept over the proceedings, for the Board had no means of ensuring that its recommendations would be given effect to or even seriously considered. Not only had the Board no funds to allot, but the provision of funds no longer lay mainly with the Government of India. Even recommendations to which effect could have been given by the Government of India temporarily at any rate were rendered sterile by financial stringency.

With the creation of a Research Fund, administered by a standing Advisory Council or Development Commission (as has been suggested in answer to Question 4 (*b*)), the Board's examination of technical questions would once more have a live interest.

But there is another, and perhaps a more important, aspect of the Board's work. Those discussions which eventually have proved most fruitful have not always been those culminating in recommendations for executive action by Government but those in which general agricultural problems have been discussed freely and experience interchanged. Agricultural and co-operative workers in India are still few in number and comparatively isolated, and such interchanges of experience and opinion frequently are most helpful and widen the outlook of those taking part in them. Such discussions, however, would be far more fruitful if a larger number of non-officials attended the meetings of the Board.

There are many aspects of agricultural development on which the views of the commercial community are exceedingly helpful and, in my opinion, the constitution of the Board of Agriculture in future should provide for a far larger non-official element.

(*b*) The Indian Central Cotton Committee has supplemented the research work on cotton carried out by provincial Departments of Agriculture in two ways, viz., by research grants (with or without the provision of staff) to provincial departments for special investigations and by the maintenance of two central research institutes.

In my opinion the Government of India might supplement the activities of Local Governments in a similar manner. Research grants to existing institutions frequently enable fuller advantage to be taken of such facilities as land, buildings and equipment, but capital grants would not necessarily be excluded. The question of how the requisite scientific staff would be obtained could be considered separately for each project, but my impression is that in many cases the senior staff would have to be provided by the Government of India. Such staff would be placed at the disposal of the Local Government for the time being and be controlled by it.

But there is a limit to the work which can be undertaken through the medium of grants and additional research institutes financed and maintained by the Government of India seem to be required. An indefinite expansion of the Pusa Research Institute is not practicable; on the contrary it would probably be an advantage if (as the new organisation develops) the Pusa Institute were to specialise more than at present on those aspects of agricultural research for which it is best adapted. In my opinion, the Imperial Institute of Animal Husbandry and Dairying at Bangalore and the Coimbatore Sugarcane Research Station represent a step in the right direction.

There is a tendency at the present time to lay too much emphasis on local work on the improvement of crops. The local aspect is important, but the

fact remains that some of the outstanding successes of the Indian Agricultural Department have resulted from work at a Central Research Institute. Whilst Deputy Director of Agriculture in the United Provinces I was very intimately connected with the testing of the various Pusa wheats and their introduction on a very large scale; that work is described in Pusa Bulletin No. 122 and the Commission have doubtless received from my successor a statement of the present position. Briefly, it may be said that Mr. Howard's work at Pusa provided the United Provinces with two wheats suitable for the greater part of the Province and which have been successfully established. His later work has provided a series of wheats of even greater capabilities and suitable for intensive cultivation since they combine high yielding capacity, high quality and good standing power with the comparatively short vegetative period which is needed in the United Provinces. These wheats have been an enormous asset to the United Provinces Agricultural Department, as has been a good deal of the other work done at Pusa. I do not consider that the various Provinces in the past have taken full advantage of the work of the Pusa Research Institute. Conversely, I consider that some work at Pusa might have developed on more profitable lines if there had been closer relations between the Imperial staff and provincial workers. If the new research institutes which I have suggested above are to justify their existence they must secure the confidence and continual collaboration of the Provinces concerned. Such collaboration might be secured by an organisation of the type adopted for the Indore Institute of Plant Industry. That Institute, which is financed mainly by the Indian Central Cotton Committee, is controlled by a Board of seven Governors, the Chairman of which is the Agent to the Governor-General in Central India, three members being appointed by the Central Cotton Committee and three by the contributing Indian States. The funds of the Institute are not merged either in central revenues or in those of the Central Cotton Committee and the contributions are fixed for a period of years. A similar form of control might be possible for new research institutes financed by the Government of India. The Board of Governors would include provincial representatives (and representatives of Indian States in some cases) and members nominated by the Government of India, and the Board should control the finances and the policy of the Institute.

The question naturally arises as to what central organisation would control the distribution of grants and the establishment of new research institutes. My personal view is that the final form of central organisation could best be decided after the work to be undertaken has been more clearly defined and the necessary information collected. In particular, a decision should first be reached on the feasibility and desirability of establishing central committees or boards for dealing with particular crops or particular problems, and whether such committees should control research funds. Some central body is needed however to get work started and to formulate schemes. For the present an advisory council with the Agricultural Adviser to the Government of India as President and with some whole-time members one of whom might be the Deputy Chairman, probably would suffice. Whether that Council should eventually control a Research Fund or whether it should be replaced by a Development Commission would be a matter for subsequent consideration. Whatever the form of central organisation adopted, two principles should be followed. In the first place it should be clearly accepted that no attempt at the central direction and control of research work is intended but that the object is to provide the means of getting work done and for the free co-operation of all those engaged on work for the betterment of rural conditions. Secondly, the creation of a definite research fund free from the vagaries of annual Government budgets is needed; without this financial elasticity the new central body, whatever its constitution, would find its work exceedingly difficult.

(CI—(i) The Agricultural Departments have done and are doing work of the greatest value. but they are inadequately equipped, both in money

and staff, to deal with more than a small proportion of the work waiting to be done. In connection with the improvement of cotton-growing, the Committee has been able to appreciate the extent of the burden laid on those departments. Not only are they responsible for research and experimental work and the demonstration of improvements, but necessarily have taken up the supply of seed on an enormous scale and have had to take up the question of marketing. Had this not been done little progress would have been made with successful improvements, several departments now find themselves in the position that almost all their energies and resources are required to develop their early successes. Greatly increased resources and staff are necessary if they are to take up the many further problems which are pressing for attention.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—Although agricultural officers and others from time to time have drawn attention to the loss of efficiency caused by excessive fragmentation of holdings, only in two Provinces, viz., Bombay and the Punjab, so far as I am aware, has the question been studied seriously. It cannot be too strongly emphasised that the present character of a large percentage of cultivators' holdings not only results in waste of effort and a low standard of efficiency but definitely inhibits such general measures of improvement as proper (surface) drainage and properly aligned irrigation channels. When to this is added the further inefficiency due to the inability of the cultivators of these holdings to maintain even reasonably good working cattle and suitable implements, the extent of the evil is immediately obvious. Unfortunately there is a tendency to accept the present condition of affairs as inevitable instead of setting to work to find means of remedying it.

I can think of no better way of making a start than the land consolidation co-operative societies started in the Punjab by Mr. Calvert. This method at any rate affords an opportunity of ascertaining the practical difficulties and of educating public opinion. But the initiative should be taken by Government and it would seem worth while for each Province to appoint an experienced revenue officer, with settlement experience (to work under the orders of either the Registrar of Co-operative Societies or the Director of Agriculture, as may be most suitable), to take the matter up. He would require a small staff to begin with and a larger one as the work grew.

Sooner or later legislation seems inevitable if any real progress is to be made. Once the advantages of re-striping and consolidation become apparent a general desire for such operations may be expected. Equally, opposition from a minority of favoured or ultra-conservative holders may be anticipated. If consolidation is to become the rule rather than the exception, legislation to enable a dissenting minority to be over-ruled will be necessary, but it would be better for such legislation to follow, and not precede, successful demonstrations. In other directions legislation may be needed at the outset, especially where occupancy tenants are numerous. I am not certain what the position of occupancy tenants, under the Agra Rent Act, would be if they agreed to re-striping. In theory an occupancy tenant's rights are in respect to an individual field as defined by a survey number and nothing would induce occupancy tenants to agree to any change in their holding which would involve the slightest risk to their occupancy rights. This is a point which would need investigation. In the United Provinces again under the zemindari system of land tenure, the problem of scattered holdings is involved in that of scattered ownership. In some villages the ownerships and tenancies are so chaotic that they would have to be left alone at the outset, as nothing short of the compulsory acquisition of the village and the extinction of all rights would be effective. But in compact estates, or compact portions of large estates and, at the other end of the scale, in villages occupied solely or mainly by peasant proprietors, progress should be possible without resort to any form of compulsion.

Most important, perhaps, of all is it that the first examples of consolidation should be really good, that the work should be thoroughly well-done and the best possible results obtained. This might involve considerable labour and expenditure on surveys and on the study of drainage and irrigation channels, but it would be well worth while. Attention should also be given to the agricultural practice and customs of the village. For example, it is not always desirable that each man's holding should be in a single piece. It may often occur that only part of a village is irrigable even after consolidation, or that part only is suited for the more valuable crops. Seen at its best (as is rarely the case) the existing form of " broad field " cultivation, where sub-division has not been carried to extremes, has certain points in its favour, for example, in making the most of the irrigable land and by reducing the labour of protecting crops from cattle and trespass by the concentration of the bulk of the area under a particular crop for a given year in a single *har* (or broad-field) combined with a system of rotation by blocks. Often consolidation will permit of the amelioration of the conditions which have led to existing practices; for example, better water courses may enable additional areas to be brought under irrigation or drainage may make more land available for valuable crops. It should be one of the aims of the " Consolidation Survey Party " to ascertain the real possibilities of each village when scientifically laid out; later on a group of villages might perhaps be dealt with as a single unit.

Question 8.—Irrigation.—(*b*) My experience of canal irrigation has been obtained mainly on one of the older systems, the Lower Ganges Canal, where the irrigating limit has been reached except in so far as economy can be effected by the reduction of seepage and evaporation losses and by a reduction in the quantity of water applied. On the above canal system the commanded area is large compared to the irrigated area and the average village could profitably use more water than it gets. The reduction of loss in departmental channels is largely an engineering question on which I cannot express an opinion. The wastage in village channels is very large—the real remedy is consolidation of holdings so as to permit of properly aligned channels. A palliative would be the construction and maintenance by the Irrigation Department of all channels served by outlets above a certain size.

There is urgent need for the serious study of the distribution of water on the older canals. The essence of the present system is that distributaries are run more or less according to a programme which, however, is varied, often without notice, according to the reports that are received as to the demand; such reports are received primarily from canal patrols and the water supply given to cultivators in a particular locality may depend largely on the local patrol's energy and honesty. On the other hand, real economy in the application of irrigation water pre-supposes confidence in the regularity of the supply. It is common knowledge that a good crop of wheat, for example, can be raised by a cultivator who irrigates from a well with far less water than is used by cultivators in canal districts. Again, results on experimental farms showed that far heavier crops of wheat can be raised with two waterings than the average cultivator produces with three waterings. Some allowance must be made for the fact that the cultivator in canal tracts uses more water because he tries to save himself labour—both on the construction of *kiaris* (irrigation chequers) and on inter-culture. But the fact remains that the greater the economy in the use of water attempted, the greater the need for accurate timing of each application. So long as a cultivator is in doubt as to when he will again get a turn of canal water (and a particular block may only get water for 2 days in three or four weeks) so long will he always err on what he believes to be the safe side and apply water to his crop whenever the supply is available. If (with due precautions to deal with such incidents as heavy falls of rain) canal distributaries could be run to fixed pro-

grammes on which the cultivator could rely, it would be easier to persuade him to reduce the amount of water applied to his crops. It is fully realised that the canal officer is not dealing with a fixed but with a fluctuating supply and that the question is not so simple as it appears. My object in quoting the above examples is to emphasise the need for more thorough study of the distribution of water and that not as an engineering and revenue problem but as an agricultural problem. At no time during my service in the United Provinces had the Irrigation Department the staff to bring their knowledge of the distribution of water up to the same high standard as the engineering side of their work.

Many canals in Northern India are mainly protective works and justify themselves amply by the protection afforded against famine. The productive canals pay reasonable returns on the capital invested and one would like to see them looked on more as instruments for improving the standard of production and less exclusively as revenue-producing concerns. The real criterion of canal efficiency is not the length of channels or the area irrigated in a season but the quantity and value of the crops raised, a point which is apt to be overlooked.

QUESTION 11.—CROPS.—(*a*) (i) So far as cotton is concerned, the improvement of existing varieties by modern methods of plant-breeding is far more important than the introduction of varieties from other parts of India or from other countries. The Indian Central Cotton Committee's report on the position of cotton research in India refers in some detail to the improvement of the various commercial types of cotton. A good deal is being done but a great deal remains to be done.

In no respect has the work of the Agricultural Department been more successful than in the replacement of nondescript local varieties of the various crops by selected strains of superior quality and yield. Unlike most other agricultural improvements, the replacement of inferior by superior varieties calls for little or no capital expenditure by the grower and the results are easily appreciated. Ultimate success depends mainly on the care with which new varieties are tested before issue and on the thoroughness with which the seed-supply is organised. Where quality is a consideration, market organisation becomes important at a very early stage and unless this is attended to a new variety may fail to catch on; this is particularly true of cotton. In order to maintain the purity of a new strain and to enable it to establish a reputation in the larger markets it is necessary to concentrate attention on a limited area and to aim at the complete replacement of inferior stocks; hence in designing seed-distribution schemes all other considerations should be subordinated to this objective. It naturally follows that in the early stages of the establishment of a new variety of a staple crop it is exceedingly important that the growers should get the full money value of the improved variety. Small quantities of a superior commodity rarely fetch their full value in local markets and hence the Agricultural Departments frequently find it necessary to assist in the marketing of new varieties until they are established.

For a number of staple crops considerable progress has already been made in replacing old mixed varieties by more uniform varieties. In many instances the question is no longer that of finding something better than the existing mixture but of deciding whether it is worth while replacing a previous successful introduction by a newer variety. Here more caution is necessary; frequent changes in seed distribution policy are not desirable and very careful testing on experimental stations, supplemented by district trials, should precede any such change. It is equally important that a reasonably long view should be taken and those strains likely to pay the cultivator best in the long run selected for introduction.

As to the methods to be used in the improvement of crops, most progress has been made by the isolation, study and subsequent testing and dis-

tribution of " pure lines " (or unit species) from existing agricultural varieties. Controlled hybridisation between two or more strains, with the object of producing a new strain combining the best characters of the parents, is an attractive but less certain method and in any case the isolation of pure lines is a necessary preliminary. In the case of such crops as sugarcane and potatoes (which are vegetatively reproduced) a simplified procedure is possible. It is perhaps as well to state that up to the present no hybrid cotton has been successfully introduced into general cultivation though several hybrids show great promise. By successful hybridisation the range of improvement is greatly widened but, in the case of cotton at any rate, the period for which selection must be continued after the cross has been made is a lengthy one. If a satisfactory fixed type is to be secured neither this stage nor the final field testing stage can be shortened without running considerable risk.

Introduction of Exotic Varieties.—A number of contradictory opinions have been expressed as to the success and failure of exotic cottons. Certain definite facts can be stated. In the first place practically every attempt to introduce exotic varieties direct into general cultivation has been a failure and few, if any, imported varieties do well at first. On the other hand two acclimatised exotics have been definitely successful, viz.: Punjab-American and Cambodia. In each case the cottons now grown are selections made from imported stocks—in the former case the imported variety had undergone acclimatisation for at least 25 years. To a considerable extent acclimatisation may be looked on as the effect of a new environment on a mixed population. Hence, if it is found necessary to import exotic varieties of cotton such importations should be small and pure line selection work should be put in hand at an early date just as in the case of an unimproved indigenous variety.

In my opinion, the same general considerations, with certain modifications, apply to crops other than cotton. In very few instances are practical results likely to accrue from the wholesale importation of foreign varieties for direct distribution and the production of seed for distribution should be done locally.

General.—While very real progress has been made in the improvement of some crops such as cotton, wheat, rice, jute, sugarcane and tobacco, there are a number of crops, on which little work has been done, the most important group probably being the millets. There is still an enormous scope for useful work in this direction and both staff and money are needed. In most cases much work is also needed on the genetics of the crop under study and also on the mechanism of pollination in order that plant breeding work may have a satisfactory basis.

(ii) In the years 1918-20 very promising results were obtained at Cawnpore with fibre flax grown from imported seed, and had the prices of flax remained at even half the figure forecasted by the Empire Flax Committee the prospect for flax as an irrigated crop in some parts of the United Provinces would have been very favourable—provided that the necessary central retting factories and financing organisation could have been arranged for. The sudden fall in the price of flax led to the experiments being abruptly terminated, but it had been shown that coarse flax of fair quality could be produced in the United Provinces. The irrigated canal tracts in the United Provinces already grow an almost bewildering range of crops, and there does not seem to be any immediate prospect of flax cultivation becoming attractive.

The groundnut crop may be classified either as a food crop or as an oil-seed. There is a general tendency for the cultivation of this crop to expand in many parts of India—often as a rotation crop with cotton. This is distinctly an advantage—the monetary return is considerable, and the groundnut forms an excellent rotation crop.

Mr. B. C. Burt.

Some years ago, the United Provinces regularly imported considerable quantities of groundnuts from other Provinces for food purposes. As a cultivated crop it was introduced about 1909, and in certain areas spread fairly rapidly. The main disadvantages of this crop are the labour involved in digging and the excessive damage caused by wild animals, especially by pig. But for the latter factor the crop would have caught on to a much greater extent in the Central Circle, United Provinces, as it yielded very well on certain classes of light sandy land from which ordinarily only a small return was obtained from such crops as *bajra* (*Pennisetum typhoideum*).

Another interesting example of the introduction of a new crop from another province is that of jute in the Sitapur and Kheri districts of the United Provinces. (*See* Agricultural Journal of India XVI-618, 1921, and XXI-380, 1926.) In those districts a low-lying riverain tract appeared to be particularly suitable for jute, and, as it stood badly in need of a " cash " crop, experiments were undertaken in consultation with the Fibre Expert to the Government of Bengal. Good yields of fair quality jute were obtained, and demonstrations and a seed supply were organised in 1920. My successor reports that by 1925 production had reached 1,800 acres and 13,000 maunds (approximately 500 tons).

(iii) In dealing with such questions as the application of the Cotton Transport Act to various cotton-growing areas, the Indian Central Cotton Committee have been impressed with the extent to which the Agricultural Departments have found it necessary to undertake the organisation of the seed supply of improved strains, particularly as this includes not only the multiplication and maintenance of the improved strains, but the organisation of the general seed supply to cultivators. Many unofficial agencies have been utilised in distribution. Details vary in different parts of India, but beyond the departmental seed farm stage, multiplication of improved stocks has mainly been secured through the medium of private seed farms controlled to a certain extent by the department. Some examples will illustrate the different methods which have come to the Committee's notice. In the Surat district of the Bombay Presidency the Agricultural Department supplies seed for private seed-growers cultivating some 7,500 acres annually of cotton of a single improved type and takes over the seed produced for general distribution. In the Dharwar district, these multiplication areas are organised by two co-operative cotton sale societies (who also deal with the issue of the seed to members), but the supply of seed to the seed-growers, inspection and rogueing are done by the Department. In the Punjab, owing to the existence of several large estates in the canal colonies, the problem has been somewhat simplified, as the Agricultural Department can supply a limited quantity of pure seed to such estates which first multiply it for their own area and subsequently supply seed to the department for general distribution.

For the actual distribution of seed to growers, the method adopted generally is a combination of departmental seed depots with the utilisation of various co-operative organisations. In some Provinces seed unions have been organised, and in others, distribution has been effected through co-operative societies.

Individual holdings in India, generally speaking, are so small that it is impossible for the seed supply to be dealt with by commercial seedsmen. Farmers of large areas in other countries can afford to pay relatively high prices for a quantity of pedigree seed sufficient to sow a portion of the farm, and from which the farmer saves his own seed for the succeeding year. Small farms and scattered holdings make this method of work almost impracticable in India, especially when dealing with such crops as cotton where degeneration by cross-fertilisation has to be guarded against. Hence the problem practically resolves itself into the organisation

of the annual supply to each individual cultivator of all the seed he requires for his holding.

The immensity of the task is obvious, and yet it must be performed if the full advantages of agricultural research are to be realised. Past experience of the introduction of improved crops into general cultivation emphasises the importance of introducing the new variety completely in compact areas to the exclusion of other varieties. This will often mean the utilisation of several different organisations and every form of unofficial assistance may need to be exploited.

It is obvious that co-operative organisations should take over from the Agricultural Department as much as possible of the business of seed supply and in areas where co-operative societies are well developed they should be able to take over seed-supply to individual cultivators in its entirety. The point at which co-operative societies should assume responsibility for the multiplication of stock must be a matter for mutual arrangement for each tract. But if such work is to be an unqualified success, the relations between the two departments must be very close. Co-operative societies supplying an improved type of seed have greater responsibilities than a commercial seedsman, and it is not sufficient that they should stock seed of one of more varieties for such members as require it. The whole of the societies' influence should be devoted to establishing the one improved variety throughout the area of operations, as only in this way will the growers gain the maximum benefit. The ultimate responsibility for the selection of the variety to be introduced must rest with the Agricultural Department, but co-operative societies can afford the department the greatest assistance both in preliminary district testing and in demonstration. On the other hand, the department should be in a position to support the efforts of the societies by supplying ample demonstration staff and other facilities. My personal experience is that much depends on the calibre of the Agricultural Assistants employed on district work of this nature.

(*c*) Reference to the successful introduction of improved types of cotton has been made in the replies of the Indian Central Cotton Committee. As stated in answer to Question 3, I was closely associated with the introduction of the Pusa wheats into the United Provinces; further particulars are given in Pusa Bulletin No. 122.

My work on Cawnpore-American cotton is summarised in Pusa Bulletins No. 88 and No. 126. In regard to that crop it should be stated that after success had been attained, operations had to be discontinued because the Irrigation Department could no longer continue the special water supplies for American cotton sowing.

QUESTION 26.—STATISTICS.—(*a*) (v) I entirely agree with the evidence put forward by the Central Cotton Committee in respect to cotton statistics. On the more general question I entirely support the recommendations of the Board of Agriculture, 1924. The question of the improvement of crop forecasts and final statistics of area and yield of crops has been very fully considered by the Board of Agriculture on two occasions, and a number of important recommendations have been made. Directors of Agriculture and other officers responsible for crop forecasts have done what they can with existing staff and finance to improve the forecasts, but there is still very great room for improvement, both in the forecasts and the final statistics. The means of indirect check on estimates of production are more satisfactory in the case of cotton than for any other crop. Nevertheless there are important discrepancies between the estimates of production and the ascertained statistics of consumption. The following table compiled from the All-India final cotton memoranda shows the differences between the estimates of production and statistics of consumption :—

TABLE.

Year ending.	Consumption = exports *plus* Indian mill consumption *plus* village consumption (conventional estimate) in thousands of bales.	Production as given in final forecast (in thousands of bales).	Difference between consumption and estimated production (±).		Stocks in Bombay on Aug. 31st (in thousands of bales).	Increase (+) or decrease (−) in Bombay stocks as compared to previous year (in thousands of bales).	Total cotton available (Col. 2 + Col. 7) (in thousands of bales).	Corrected difference (Col. 3 − Col. 8) (in thousands of bales).	Estimated error in forecast, per cent.
			In thousands of bales.	Per cent.					
1	2	3	4	5	6	7	8	9	10
31st Aug., 1926	6,391	6,038	— 353	— 5·8	427	+ 54	6,445	— 407	— 6·7
,, ,, 1925	6,826	6,091	— 735	— 12·1	373	— 139	6,687	— 596	— 9·8
,, ,, 1924	5,946	5,161	— 785	— 15·2	512	— 180	5,766	— 605	— 11·7
,, ,, 1923	6,270	5,073	— 1,197	— 23·6	692	— 296	5,974	— 901	— 17·8
,, ,, 1922	5,972	4,485	— 1,487	— 33·2	988	— 224	5,748	— 1,263	— 28·0
,, ,, 1921	4,941	3,600	— 1,341	— 37·2	1,212	— 220	4,721	— 1,121	— 32·1
,, ,, 1920	5,343	5,796	+ 453	+ 7·8	1,432	+ 277	5,620	+ 176	+ 3·0
,, ,, 1919	3,991	3,972	— 19	— 0·5	1,155	+ 395	4,386	— 414	— 10·4
,, ,, 1918	4,499	4,000	— 499	— 12·5	760	— 343	4,156	— 156	— 3·9
,, ,, 1917	4,985	4,489	— 496	— 11·0	1,103	+ 404	5,389	— 900	— 20·0
,, ,, 1916	5,109	3,738	— 1,371	— 36·7	699		5,109	— 1,371	— 36·7
,, ,, 1915	4,889	5,209	+ 320	+ 6·1			4,889	+ 320	+ 6·1
,, ,, 1914	5,913	5,066	— 847	— 16·7			5,913	— 847	— 16·7
,, ,, 1913	4,483	4,610	+ 127	+ 2·8			4,483	+ 127	+ 2·8
,, ,, 1912	3,985	3,288	— 697	— 21·2			3,985	— 697	— 21·2
30th Sept., 1911	4,303	3,853	— 450	— 11·7			4,303	— 450	— 11·7
,, ,, 1910	4,928	4,718	— 210	— 4·5			4,928	— 210	— 4·5
,, ,, 1909	4,200	3,692	— 508	— 13·8			4,200	— 508	— 13·8
,, ,, 1908	4,290	3,122	— 1,168	— 37·4			4,290	— 1,168	— 37·4
,, ,, 1907	5,362	4,946	— 416	— 8·4			5,362	— 416	— 8·4

Information not available. do.

* No information is available of the variation in up-country stocks but such stocks are at a minimum on August 31st.

In order to gain a truer comparison, the variation in Bombay stocks at the end of the season (as actually determined by census) has been taken into account. It is true that there is still one unknown factor on the consumption side, viz., the amount of cotton used for domestic purposes in villages and for hand-spinning and which is conventionally estimated at ¾ million bales per annum. There is no reason to suppose that such domestic consumption varies very greatly and hence it is fair to assume that the estimates of production are inaccurate. For other crops where the local internal consumption is a much greater proportion of the whole, the checks which can be used in the case of cotton do not exist and therefore there is even greater need for accurate estimates of production. One important check afforded in the past by the internal rail-borne trade statistics was discontinued in 1923 on account of retrenchment. These returns have now been re-established for cotton only at the instance of the Indian Central Cotton Committee; it is exceedingly desirable that they should be re-established in full as early as possible. At any time accurate knowledge of the movements of food grains, for example, may be of the greatest importance.

It is generally admitted that the annual figures for the areas sown with various crops are exceedingly good. In fact, Indian statistics, so far as areas are concerned, probably compare favourably with any in the world. There are difficulties even here. In permanently settled tracts the revenue staff which furnishes figures in other Provinces does not exist; the crop statistics most affected are those for jute and rice. Apart from these the main difficulty is in regard to mixed cropping, but, generally speaking, the errors are not such as to invalidate the statistics as a whole.

The greatest difficulty has always been the estimates of production which involve two factors, viz., a standard or normal outturn per acre and a seasonal condition factor. As regards the first of these, so far as the major crops are concerned, most Provinces, from a consideration of all the evidence available, have adopted definite standards. I agree with the recommendation of the Board of Agriculture that such standards should only be revised as a result of crop-cutting experiments. The second factor—the seasonal condition factor—is the most difficult of all, and India is not the only country in which very large errors occasionally occur. The problem here is to integrate and interpret the reports received from the primary reporting agencies—mainly the village accountants. For many years attempts were made to persuade the primary reporters to adopt some mental standard of the normal crop. By common consent this attempt has now practically been abandoned in favour of the more scientific method of leaving the primary reporter to make his returns in his own way and of evaluating his returns in the light of information received from independent checks.

Much criticism has been levelled against crop-cutting experiments in the past, and these criticisms were perhaps justified as the methods employed were of doubtful value. If crop-cutting experiments are to have any statistical meaning no attempts should be made to select "typical" fields, but the experiments should be sufficiently numerous, and a sufficiently random distribution provided for, to ensure the results having a statistical meaning. It is quite obvious that Agricultural Departments cannot undertake work of this nature with their existing staff. Crop-cutting experiments naturally fall in that period of the year when all district agricultural staffs are extremely busy and when men cannot be detached from their primary duties for the purposes of collecting statistics. If agricultural statistics are to be improved both staff and money will be needed. What has been said of crop-cutting experiments is true of the interpretation of primary condition reports. No Director of Agriculture can adequately deal with this question unless he is provided with a statistician and proper staff.

With regard to agricultural statistics in general, I would invite attention to the fact that the International Institute of Agriculture, Rome, is

organising a world census of agricultural production to be made in the year 1931. This decision was reached at the General Assembly of the Institute in 1924, but I have not yet seen the detailed recommendations made in 1926 when the question was to be examined by a Committee of experts. In my opinion, it would be very much worth while for India to collaborate with the Institute in this international enquiry. To afford the data in the form required by the Institute will doubtless need some modification of the usual methods of collecting statistics, for example, in those Provinces where a quinquennial or decennial cattle census is the custom a departure from the usual date might be necessary. It is inevitable that some special expenditure would be involved which may be considerable. Nevertheless the experience to be gained of the methods used by other countries would be of use for the future, and if, as seems likely, the census is carried out in a well-designed plan, the actual information should be of the greatest value.

I have indicated above that any improvement in agricultural statistics will mean increased expenditure, and I am aware that there is a strong feeling in many Provinces that they cannot afford to divert any part of the limited funds available for agricultural research and development to this purpose. Adequate provision for agricultural statistics would seem to be a matter which the Central Government might finance. Accurate statistics of agricultural production are necessary for trade purposes and frequently for administrative purposes. To the Agricultural Departments they would be particularly valuable in affording a means of ascertaining how far its efforts were affecting the general standard of agricultural production.

(*b*) *Establishment of closer relations with the International Institute of Agriculture, Rome.*—Attention is invited to the discussion on this subject at the Board of Agriculture in India held at Pusa in 1925 and in particular to Resolution 2, the Report of the Committee of the Board and the notes contained in Appendix II.* At our visit to Rome in 1924, as delegates representing the Government of India, both Sir Rajagopalachari and myself were much impressed by the excellent work which was being done and by the advantages which would accrue to India from closer relationships between the Institute and the various departments in India concerned with rural development and welfare. At present India does not benefit to anything like the extent possible from the work of the Institute; on the other hand, she entirely fails to exercise that influence on the Institute's policy and programme of work which she should do by virtue of her position in the Empire and in Asia.

On all questions affecting rural economics, agricultural statistics and the diseases of plants and animals, the International Institute has collected a mass of valuable information which should be made use of. While the Institute already does a good deal of broadcast such information through the medium of its special publications, advantages should also be taken of its willingness to undertake special enquiries on specific references. Further, it is not only agricultural, co-operative and other officials who need the information which the Institute can supply. A number of unofficial workers throughout India, of recent years, have devoted themselves to the study of rural problems, and these, and others, doubtless would welcome better means of gaining a knowledge of the experience of other countries. On the other hand, the International Institute's own work is hampered by insufficient knowledge of the information available in regard to Indian conditions whilst Indian statistics are not fully utilised, partly because they are unfamiliar in form and partly because their limitations and relative value are not appreciated.

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* *See* Proceedings of the Board of Agriculture in India, 1925.

The Board of Agriculture recommended that closer relations with the Institute should be established by the employment of the following means:—

(*a*) India should continue as a contributing nation in Group 2 paying the new scale of subscription from the present year.

(*b*) A permanent delegate representing India should be appointed to the Permanent Committee which governs the Institute. This delegate would reside in Rome, and act as a liaison officer between India and the Institute; in particular, it would be his duty to furnish the various Indian departments concerned with particulars of those branches of the Institute work which would be of value to them, and to obtain information for them.

(*c*) A permanent Committee should be established in India which would correspond with the delegate at Rome and which would advise the Government of India on questions arising out of the agenda for the biennial meetings of the General Assembly. In particular, this Committee would advise on the instructions to be given to delegates.

(*d*) A full delegation of five members should be sent to each meeting of the General Assembly. The delegation should include one at least unofficial member, preferably a member of the Legislative Assembly or the Council of State, the permanent delegate and three technical members selected with reference to the subjects up for discussion at any particular meeting.

The annual cost of India's annual subscription (in Group II) would be a maximum of 32,000 gold francs or (with the rupee at 1s. 6d. gold) about Rs.18,000 per annum. The cost of a permanent delegate would be about Rs.10,000 per annum. The cost of sending a representative delegation of five members to the biennial meetings of the General Assembly probably would not exceed Rs.10,000 per meeting. The average annual expenditure, therefore, would be some Rs.33,000 which would be fully justified by the benefits to be gained.

APPENDIX.

The following statement shows the grants made on various schemes since 1923 (including revised estimates of expenditure up to 31st March, 1927) and the budget estimates for 1927-8:—

1.	2.	3.	4.
	Date of commencement.	Expenditure to March 31st, 1927.	Budget 1927-28.
BOMBAY.		Rs.	Rs.
1. Physiology of the Cotton Plant in Gujerat.	September, 1923.	81,696	25,000
2. Cotton Wilt investigations—Improvement of the Upland type of American Cotton by Hybridisation.	"	73,699	25,000
3. Spotted Boll-worm investigation ...	"	55,386	18,000
4. Khandesh Cotton-Breeding Scheme	October 15th, 1926.	2,500	5,000
5. Sind—Physiological Research Scheme	Work not yet started.	5,000	20,000
Total Bombay	—	2,18,281	93,000

1.	2.	3.	4.
	Date of commencement.	Expenditure to March 31st, 1927.	Budget 1927–28.
MADRAS.		Rs.	Rs.
1. Herbaceum Cotton Breeding Research Scheme.	September, 1923.	38,980	13,000
2. Pempheres and Physiological Research Scheme.	Work now starting—Bio-Chemist appointed.	13,700	55,000
Total Madras	—	52,680	68,000
UNITED PROVINCES.			
Pink Boll-worm Research Scheme ...	May, 1924 ...	64,000	14,000
CENTRAL PROVINCES.			
(*a*) Plant-breeding work on C.P. and Berar Cottons.	July, 1923...	87,399	25,400
(*b*) Cotton-Wilt investigation			7,600
Total Central Provinces...	—	87,399	33,000
PUNJAB.			
1. Botanical Research Scheme	August, 1925	99,443	50,000
2. Entomological Research Scheme (Pink Boll-worm)	May 1st, 1926	20,600	15,000
Total Punjab	—	1,20,043	65,000
BURMA.			
Grant for apparatus for technical examination of cottons.	—	3,000	—
GRAND TOTAL	—	5,45,403	2,73,000
EXPENDITURE CENTRAL RESEARCH INSTITUTES.			
Indore Institute of Plant Industry ...	October, 1924	4,84,677	1,00,000
Technological Research Laboratory ...	January, 1924	8,31,367	1,53,274
Research Studentships	September, 1923.	89,160	40,000
Investigations on the Finance of the Cotton Crop and other expenditure on the improvement of Cotton Marketing.	—	33,841	25,000
Total	—	14,39,045	3,18,274

Sir JOSEPH KAY, Vice-President, and Mr. B. C. BURT, Secretary, Indian Central Cotton Committee.

Oral Evidence.

48,224. *The Chairman*: Sir Joseph Kay, you are Vice-President of the Indian Central Cotton Committee, and you, Mr. Burt, are Secretary of that body?—Yes.

48,225. Sir Joseph, I do not know whether you would like to make any statement in amplification of the very full notes which are before the Royal Commission on the subject of the Indian Central Cotton Committee? —I do not think so. The memorandum we sent you on the history and work of the Committee explains in great detail and at some considerable length the work which we have been doing and, in any case, the work we intend to do. I think that covers any ground which I could possibly touch on. I have nothing further to add.

48,226. Is it your view that further research in the agricultural field is necessary, and is likely to prove fruitful from the cotton point of view?—There is a tremendous lot still to be done and I feel that we are only just commencing our work. As you know, on the research side, time must be taken before we can get any results which will finally benefit the trade as a whole.

48,227. Are you satisfied with the work that is being carried out at the Indore station?—Up to now I am highly satisfied, but it is only two years since we really commenced work on plant breeding there, and it is too early, I think, to draw any conclusions. I visited Indore myself last year, and was very much impressed with the very rapid progress which had been made. I think, if I may say so now, that plant breeding is going to play a very important part in the work of cotton development in India. It balances the other side of our work. On the one side, we have trade problems, which are purely trade problems, matters relating to legislation. On the other side too, we have, in Bombay, our spinning laboratory and research work on the cotton fibre. This helps to balance the other side of our work which deals entirely with the agricultural side and botanical side of plant breeding.

48,228. Are you satisfied with the work being done at the Technological Laboratory?—I am highly satisfied with it; and in amplification of that we have already received many letters from agricultural officers saying how highly they appreciate the work and how useful it is to them. What happened previously was this, that an agricultural officer who was trying to introduce new types was working absolutely in the dark. No one could test his preliminary work, and he might be going on entirely on wrong lines. What happens now is this: an agricultural officer puts in a new type of seed; when he gets a small quantity grown, he can send it to Matunga, he can have it tested, and he can get the Director's report as to whether it is going to be a workable and saleable cotton; that prevents a lot of waste of time on the part of the agricultural officer.

48,229. How about your relations, as a Committee, with, first the Imperial Department, and secondly the Agricultural Departments in the various Presidencies and Provinces?—Our relations, so far, have been of the best because, I think both the Provincial Governments and certainly the Central Government realise that we are out to help in this all-important work of improvement of cottons of all types. The Committee, as you know, is a large one, and is representative of all sections, first of the trade and then of the Agricultural Departments. The Committee too, has power to co-opt, if special questions arise, Government officials who have the special

knowledge which is required. I might give you a case in point. We had to have Mr. Fletcher, the Government Entomologist, the other week, to throw some light on what might happen if the boll-weevil were introduced into this country through the means of imported American cotton.

48,230. Mr. Burt, I do not know whether you would wish to add anything on this point that I have touched upon. I shall have to ask you a question or two about your evidence later on?—(*Mr. Burt.*) With regard to the point which Sir Joseph Kay has made about our happy relations with the provincial Agricultural Departments. I should like to say that I think all of them welcome the grants which the Committee has been able to make to assist research, and the fact that we have been able to make such grants and to make a definite contribution towards such work has enormously helped us in getting through our regulatory measures. When we ceased to be a purely advisory committee and became a committee able to do constructive work, we found that our opinion on regulatory and trade measures was received with more confidence.

I think there has been a considerable advantage in the interchange of scientific opinion in our Research Sub-Committee in the course of discussing first of all new schemes, secondly research policy and thirdly research work. I think the fact that agricultural officers working on cotton come together to discuss questions for the whole of India has helped the interchange of scientific ideas.

48,231. *Professor Gangulee*: How often do you meet?—The full committee meets two or three times a year; the sub-committees meet as much oftener as is required.

48,232. Do you, Sir Joseph, form the impression that one result of the the Committee's work has been to bring about a great interchange of information and experience between officers working on these problems all over India?—(*Sir Joseph Kay.*) I think it is a little too early to say that, because a lot of the work has not yet had time to develop to such a stage that it would benefit the whole of the Provincial Governments. That is what we are aiming at; we are aiming to work on problems which will be beneficial to the whole of the country. Of course, against that we have the purely trade side. The work we have done up to now has been highly appreciated. That is in regard to such things as the application of the Cotton Transport Act, and I think this, and another Act, the Cotton Ginning and Pressing Act, will in time prove to be quite a sound piece of legislation. The latter has only been recently introduced, and has been in actual work just under a year.

48,233. *Sir Henry Lawrence*: What is the object of that?—The object of that Act is to be able to trace back falsely packed or falsely pressed or badly ginned cotton, and the means devised are really simple. First of all, the ginner and the press owner must keep a record of his cotton. When the cotton is pressed, every bale is marked with, first, the press number (every press has a number alloted to it) and secondly the area where the cotton was pressed, and then on the hessians there is the consecutive running number of the bale. Now, if a buyer gets a badly pressed bale, through the medium of these numbers we are able to trace it right back to the press owner. In addition to that, the East India Cotton Association have made cotton, which is not stamped, bad tender here. As the time goes on, we are of the opinion that that must have the effect of preventing a lot of malpractices which have existed both in ginneries and presses, more so in press houses.

48,234. *The Chairman*: Do you attach importance to the fact that the producer is represented on your Committee?—We attach great importance to it. We think it is absolutely essential that the grower should be represented and well represented on the Committee.

48,235. How many representatives has the grower on your Committee?—Ten.

48,236. Have you the list of their names here?—(*Mr. Burt.*) I have not got it with me, but I could give you the names from memory.

48,237. Could you give us an indication, member by member, of what their standing is in the agricultural sense?—(*Mr. Burt.*) Starting first of all with Bombay, the Surat representative, Rao Bahadur Bhimbhai Naik, is a landowner, and if I remember rightly, he is also chairman of the Surat District Board. He is concerned with both agriculture and business. We have a new representative from Sind, who is personally a large cotton grower.

48,238. Is he a landlord?—He is a landlord and cotton grower.

48,239. *Sir Henry Lawrence*: What is his name?—Mr. Bakshi Darshan Singh. I could let you have a list of the names. (*See* Appendix I, page 92.)

48,240. *The Chairman*: We want just to get some idea of the type of man?—From the Punjab they are both zamindars; they have cultivation of their own. From the United Provinces they are both small cultivating zamindars.

48,241. *Dr. Hyder*: Is not Nawab Sir Mohammed Muzammil Ullah Khan one of the biggest landlords in the United Provinces?—Sir Muzammil Ullah Khan ceased to be a member of the Committee in 1926.

48,242. *The Chairman*: You adhere to the statement that the two are cultivating zamindars?—Yes. The Madras representatives are both landowners. The Central Provinces and Berar representatives are also both landowners.

48,243. Will it be advisable, in your judgment, to strengthen the representation of cultivators?—The difficulty there is to get a tenant cultivator who can attend meetings in Bombay and can understand English. The cultivating zamindar is as near as we can get. On the Provincial Cotton Committees they are able to have men who are much more nearly representative of the actual cotton grower.—(*Sir Joseph Kay.*) We have a representative of the co-operative societies.

48,244. Still, it is true to say, is it not, that in the case of a zamindar whose tenants are paying rent on a cash basis, he has no financial interest in seeing that his cultivators get the best possible price for their cotton?—(*Mr. Burt.*) Most of these men are themselves cultivating cotton, either directly or on the share system.

48,245. On *batai*, they would be interested in seeing that their tenants get the best price?—Yes.

48,246. But on cash rents, my statement is true?—Yes; broadly speaking, it is true.

48,247. Sir Joseph Kay, I understand that it would be to your convenience if my colleagues ask the questions which they wish to ask now, so that you will be released as early as possible?—Yes.

48,248. Do you wish to make any statement regarding the commercial side of the question?—I only wish to say this, that the trade has welcomed, and, generally speaking, is very pleased with the work which the Central Cotton Committee has been doing. There must always be a certain amount of agitation for results from the trade, especially with regard to research work. People who are merely trading in cotton do not realise the amount of work and the amount of time that is necessary before you can show any actual work in cotton development. I think they realise, as a result of the formation of this Committee and its work, that the deterioration of Indian cottons has not only ceased long ago, but that we are on the way to improve the quality of cotton in India.

48,249. *The Raja of Parlakimedi*: Does the Central Cotton Committee undertake any publication work as to the best cotton to be grown in different parts of India?—(*Sir Joseph Kay*): We do not try to advertise cotton directly by way of issuing pamphlets. But what we do is this: immediately a new type is established, that is, when a new variety has reached the stage when it has become marketable, then through the good offices of the East India Cotton Association, the Liverpool and Manchester Cotton Associations, we are able to make known the best and accepted type of cotton which will be for the benefit of buyers, and induce them to advise their members accordingly. Further than that, we make it known that, from the spinning test point of view, the new cotton has become marketable, and pamphlets are issued by us for the spinning trade. Every year we take up tests on what we call standard cottons from season to season. The results are issued in pamphlets and distributed to the trade widely.

48,250. For instance, do people get to know about the best varieties of cotton grown in India, that cotton which has created the best demand in the market?—I think so. The growers themselves in certain districts can get to know the value offered in the markets for better cottons and then obtain a higher price, but if the growers are to get full prices for their produce, we hold very strongly the view that the cotton markets must be improved very much in the near future. That is a line of work which we are extensively encouraging and working on.

48,251. In Tinnevelly the irrigated Cambodia cotton is the best cotton produced in India. Do the people of that locality know that it is the best cotton?—(*Mr. Burt*): The Central Cotton Committee concentrates on giving information to the trade of the improved cotton brought under cultivation; the bringing of new cotton to the notice of the ryot is the function of the provincial Agricultural Department. We do not attempt ourselves to advise the cotton growers to grow particular varieties.

48,252. Do the Agricultural Departments keep themselves in touch with this information from the Central Cotton Committee?—Very closely.

48,253. Is anything done to inform the local Agricultural Departments of any research work that is done to combat diseases that are affecting these varieties?—Yes; we send out any information we get to local Agricultural Departments as soon as we possibly can.

48,254. On all points?—On all points.

48,255. You say that in ginning factories a certain amount of cotton of certain varieties is mixed, and that you are taking precautions to put a stop to it under the present Act. Do you think it has a sufficient effect upon that?—(*Sir Joseph Kay*): The Act has not been in force long enough to say what effect it has had. We had a case a short time ago where a complaint came from a buyer in Bremen. We were able to trace falsely packed bales back to the factory and we drew the attention of the shippers to it. The shippers warned the ginning factories that if they carried on this practice they would cease to do business with them. So that we hope that without introducing any further legislation the trade itself will finally force the ginners and pressers to give up this practice.

48,256. On page 26 of your Committee's note of evidence it is stated that the Sudan Government is insisting upon certain conditions to prevent all these malpractices: "(*a*) Prohibit the cultivation and export of cotton of inferior quality, or of any particular kind, or of all cotton other than specified kinds or qualities." Does that find a place in the present Act?—No. The difficulty is that one does not want to have more legislation than is absolutely necessary; we do not want to interfere with the

trade if we can do it otherwise. For instance, we have often talked about the licensing of ginning factories and presses; but while it would help considerably in this direction, you might be inflicting a great hardship on the ginning houses and presses which already exist, particularly small ones.

48,257. Do you not think it is very necessary at this stage?—My view is that it is not necessary at this stage because conditions in the Sudan and conditions in India are so very different. Here we grow long and short staple cotton and have got a great variety of cotton, whereas in the Sudan there are not more than two types of cotton. If you introduce too much legislation here you may be inflicting great hardship on the growers; so that we have always held to the view that legislation should be slow and should be very carefully considered before it is recommended by the Central Cotton Committee.

48,258. Then on page 27: "(*d*) make regulations for the sowing and use for other purposes of cotton seed from cotton ginned in the Sudan, and provide for the inspection of cotton seed and cotton ginned and unginned." What do you think of that?—We hope to get over that. First of all, by the constant work that is being carried on by the provincial agricultural departments we hope to get the growers to produce a type of cotton which will benefit them. For example, we have got 1027 cotton in Surat; the growers have, after considerable trouble, given up the inferior types of seed and now we have got there one great zone growing this improved variety, which is proving to be profitable to the grower. In the early days there was an agitation against it because the grower, perhaps naturally, will grow the cotton which will give him the biggest ginning percentage yield, overlooking the fact that the prices may be lower. That is an example of what can be done by vigorous work on the part of the Agricultural Department and secondly by the gradual introduction of the Cotton Transport Act, preventing other inferior types coming into that area.

48,259. What do you think of (*g*) on the same page: "Make regulations for grading or classifying cotton, and for making it compulsory for cotton to be graded or classified by an official classifier, and for the marking of bales of cotton or parcels of cotton seed, and for the prevention of the export of cotton which is not graded, classified and marked"?—The difficulty is that you have got a great variety of cotton grown here. As time goes on you may be able to keep to certain types in certain areas. You have got to remember that in India there are tracts in which long and short staple cotton are grown in the same area. You may not be able to say: "You shall grow nothing but long staple cotton in this area," because there are belts even in long staple areas where it is only possible to grow short staple cotton.

48,260. Has that been properly investigated, do you think?—No. This is a matter which will have to come up for consideration. The question of efficient grading for export has not been examined at all yet. The view has been taken so far that you have a very highly organised export trade in India and the question of official grading has not been seriously examined.

48,261. On pages 27 and 28 you say, "Indian cotton crop reports are published regularly in the Indian Trade Journal (by the Director-General of Commercial Intelligence and Statistics) and in the newspapers generally. Up to 1922 the All-India cotton forecasts were issued to the trade in the form of separate leaflets." At that time were these pamphlets published in the vernaculars?—(*Mr. Burt*): No. They would not be of much use to anyone except traders. The All-India forecast is simply

a statement of the Indian cotton crop in different areas in the whole country classified by trade varieties. It is not the sort of thing that would be of interest to a small cotton grower.

48,262. There are districts in which cotton is the main crop. When you suggest publication of leaflets, do you not think that such publication should be in the vernacular of those districts?—If publication in the vernacular is required, it would be the function of the Local Governments to publish the figures for their own areas in the vernaculars of the Province. I do not think the publication in vernacular of the All-India cotton forecasts would be of any use to the cotton grower.

48,263. You suggest going back to publication of leaflets. Do you not think that the Central Cotton Committee should make a suggestion to the Provincial Governments that they should publish leaflets in the vernaculars? —No; no demand for such leaflets in the vernacular has been brought to our notice so far.

48,264. *Sir James MacKenna*: With reference to this question of the publication of leaflets raised by the Raja Saheb, did the Government of India give any reason for not complying with the request that the publication of All-India cotton forecasts in pamphlet form should be re-introduced? —As a matter of retrenchment.

48,265. On page 5, paragraph 13, of the memorandum originally submitted, you refer to the Cotton Transport Act, and say: "Trade records of prices agree with the results of local enquiries in showing that the cotton-grower has obtained an enhanced price for his produce." Is the Central Cotton Committee in a position to give actual trade records which prove that?—Yes; I will furnish those. (See Appendix II, page 93.)

48,266. On page 16 of the memorandum referring to marketing you express the opinion that the compounds of all ginning factories served by the market should be included in the market proper. Do you think it would be feasible to control compounds of ginning factories at a distance by the market committee?—The point is that the market committee must have authority over the systems of weighment and the fixing of rates. What is going on at present in Berar and also in some of the unregulated markets in other Provinces is that although the deal is made in the market, the actual weighment of the *kapas* takes place in the ginning factories, and also the real fixing of the rates takes place in the ginning factories. Unless the market committee can exercise control over the transactions done in the compounds of the ginning factories, it would not serve the purpose it is intended to serve.

48,267. Do you think it would be feasible?—I think so.

48,268. Is there any particular reason for the falling off of export demand for Dharwar-American?—The American prices at present make the export of staple cotton from India almost impossible. It was going up until two years ago.

48,269. We have heard a certain amount about deterioration of 4-F. What is the considered opinion of the Central Cotton Committee about 4-F? —We have recently discussed the reasons for the unsatisfactory character of the Punjab-American crop of this year; we also discussed the question in 1921. As the result of our discussion in 1921 we provided the Punjab with a Cotton Research Botanist (appointed in 1925), and one of the main lines of his work will be the investigation of better varieties, the isolation of pure strains, the testing of them, and a study of the water requirements of the Punjab-American cotton. I do not think that there has been any permanent deterioration of 4-F, in my own personal opinion, during the last five years. I do not think 4-F is quite the same cotton as it was

10 or 12 years ago; but during the last five years I do not think there has been any permanent deterioration. In my opinion, the Punjab-American we saw last year was as good as it was five years ago.

48,270. Has the Central Cotton Committee had any influence on the cotton policy of the Central Provinces?—There again we have given a grant for cotton-breeding work; and that work is for the production of cotton of a better staple. A cotton of a distinctly better staple and which has the further advantage of being wilt-resistant is being tried this year on a scale of several hundred acres.

48,271. So, there is hope?—Yes.

48,272. Are you, as a committee, satisfied that one of the results of the committee has been to secure to the producer a better price?—I think so; that is a fair conclusion to draw.

48,273. You are sitting at the top; you ought to know.—(*Sir Joseph Kay*): There is no doubt about that.

48,274. *Professor Gangulee*: What principle do you follow, Sir Joseph, in making grants to Provincial Governments?—(*Sir Joseph Kay*): The principle followed is this: first of all, it must not be a matter which is purely provincial and which should be undertaken by the Provincial Government themselves. The work of the Central Cotton Committee is simply to supplement work which is carried on and can be done, in a Province, which would benefit the whole of India. The procedure followed is this, that the Provincial Government, through its Director of Agriculture, sends in to us a scheme or applies for a grant for the work which he wants undertaken; that comes before what is known as our Agricultural Research Sub-Committee—that is a sub-committee comprised of agricultural officers, technologists and experts, with one or two trade members to see that the finances are not running too much in any one direction. If that sub-committee is convinced that the problem is a pressing one and is one which is new and which would benefit the whole of the country, then it makes recommendations for a grant, and that is usually confirmed by the main committee after it has been discussed again.

48,275. Do you know of any instance where the provincial departments abandoned their own experiments just on receipt of your grant?—No. That is the one thing we try to avoid when making a grant, that the Provincial Government shall not abandon their own work and simply get money to do work which they might undertake themselves. (*Mr. Burt*): The general result of our giving grants to cotton research is that Local Governments have given more. In connection with several of our grants the Local Governments have come forward to supplement our grants.

48,276. *Mr. Calvert*: They have abandoned other work in order to get your money?—No.

48,277. They draw from other heads in order to comply with your conditions?—I am afraid I cannot argue outside the Agricultural Department's budget; I am quite sure that it has not happened in the provincial Agricultural Departments.

48,278. *Professor Gangulee*: Have they increased their share of expenditure in cotton research?—Yes. (*Sir Joseph Kay*): When you say cotton research, do you mean cotton development?

48,279. I was thinking really of cotton research. Do you experience any administrative difficulty in controlling your grants?—No; so far we have had no trouble at all. We get on very smoothly; the statements are sent in periodically and records of work are sent in every six months and examined by our sub-committee and by the main committee; and, on the whole, it has worked very satisfactorily.

48,280. Does the sub-committee pay frequent visits to the station?—No. That, of course, is impossible, because we may have a Director of Agriculture in Madras or from the Punjab who can only come down to Bombay twice a year. Mr. Burt, our Secretary, visits these schemes at least once a year. We hope that, now we have a Deputy Secretary, Mr. Burt will be able to get round to all schemes twice a year.

48,281. What about the type of research workers you get? Are you satisfied with them?—Yes; but I am afraid you have put that question too widely. We have brought out highly specialised experts; for instance, we have got at Matunga, Professor Turner who was the head of the Textile Department of the Manchester College of Technology; we have brought out Mr. Trought, who was doing similar work in Egypt; we have got highly scientific workers in Mr. Howard and Mrs. Howard at Indore.

48,282. Those are your own research workers?—Yes. Then, in addition we have instituted research scholarships with the hope, first of all, of training more cotton workers in India, which the country was so badly in need of until the Central Cotton Committee came in. So far, we have turned out several extraordinarily capable and efficient research workers; and we hope that, as time goes on, with these eight scholarships that we are giving every year, we shall finally build up in the country itself a reliable corps of research workers.

48,283. Are you satisfied with the propaganda done by the Departments of Agriculture in matters relating to cotton? I understand that you yourself do not undertake any propaganda work?—I do not want to criticise the work of the Agricultural Department, but I think propaganda of any kind in agriculture would be beneficial to the grower. The G.I.P. Railway, as you know, has undertaken a little of it recently in the way of cinema films, and I should think there is tremendous scope for more propaganda by the Agricultural Department, generally in the use of ploughs and tools, and of fertilisers.

48,284. What about distribution of seed? Do your committee take any share in the distribution of good cotton seeds?—No. I can only speak in regard to that so far as Bombay is concerned; and in Bombay I believe the distribution of seed has been done exceedingly well.

48,285. Was it done through you or through the Agricultural Department? —Through the Agricultural Department. We have no complaints to make.

48,286. Are you satisfied yourself with the power you have of controlling ginning factories?—If this present legislation does not fulfil what we think we can only advise Government as to what legislation should be introduced.

48,287. We saw a regular hose turned on cotton the other day in a ginning factory?—That is one of the difficult problems which is before us, and which has been before us for some considerable time. The simplest solution would be the licensing of ginning and pressing factories, but, as I pointed out just now, it calls for very great consideration, because you might inflict severe, and in many cases very severe, hardships on small ginning factories. If this present legislation does not fulfil what we think it may fulfil, then we shall certainly have to turn our minds to this all-important question of licensing gins and presses.

48,288. What control have you over the market committee?—We, as a committee, have no control over them.

48,289. Do you have to supervise the markets, to visit them at intervals? —In the ordinary course of events these measures are provincial measures and their application rests on the Administration.

48,290. *Mr. Calvert*: I do not wish to criticise in any way your constitution, but I should like to have a little clearer idea of how you consider

you would be able to obtain on your committee the representatives of the real grower, the sower of cotton, not the man who takes the 'rent. I take it that the method of cultivation requires a dense population, a dense population means usually petty holdings, and petty holdings usually do not go with correct education. Do you not think that there would be a tendency to get a rent receiver on your committee rather than the actual grower?—It is very difficult to get a grower to come along. Their interest is looked after, to a great extent, by the agricultural officers who know their districts, and whose one interest is to improve the lot of the grower; and then you have your co-operative society representative. If we could get hold of the actual grower, if he could come forward and express his views, then I think everybody would welcome it; but as I say, it is very difficult to get this man to come forward, even to meet the committee. In Madras there was some trouble with regard to the application of the Transport Act, and Mr. Burt, myself and two other members of the Cotton Committee went specially to discuss this matter, to see if we could get over this difficulty. We wanted the growers to come to the meeting which was thrown open to everybody, but I am sorry to say that we could not get the real grower to come along.

48,291. The evidence we have had about the Agricultural Departments *vis-a-vis* the petty holder is that they are playing up to the bigger landlords, and we have been repeatedly told by Directors that they can see no hope for the small man; they are concerned with the bigger man?—I have always taken the view that the agricultural officer has been protecting the interests of the small grower just as much as the larger one.

48,292. *Sir James MacKenna*: Is it not a fact that in addition to the Central Cotton Committee you have Provincial Cotton Committees in all the Provinces, on which the actual grower is more fully represented?—(*Mr. Burt*): You, of course, get nearer to the actual grower on the Provincial Cotton Committee. I should like to add a word in answer to Mr. Calvert's question to Sir Joseph. We know from experience in the Central Cotton Committee that the large man as the cotton growers' representative at present does put forward the growers' standpoint, though I do not suggest that his interests are identical with those of his tenant when it comes to questions as between tenant and landlord, but I certainly do not agree with the suggestion that in India the Agricultural Departments are looking after the interest of the larger man and not of the smaller man. As a matter of fact, the discussions which we have had in committee entirely go against that view.

48,293. *Mr. Calvert*: I am only quoting the views which we have gathered in evidence before us.

48,294. *Sir Henry Lawrence*: In evidence put forward by whom?

48,295. *Mr. Calvert*: By Directors of Agriculture to us.

48,296. *Sir Henry Lawrence*: Which Directors of Agriculture?

48,297. *Mr. Calvert*: Mr. Anstead from Madras, Mr. Clarke from the United Provinces; I asked them the same question, namely, what hope there was for the small man, and they said there was no hope.

Sir Joseph Kay: When you say, "hope for the small man," do you mean to be represented on committees?

48,298. *Mr. Calvert*: No, the Agricultural Department are looking towards the bigger man, and I want to know if the small man's interests are looked after, because cotton requires a dense population. The conditions of cotton-growing, you will admit, are not the same as wheat-growing. The point is this (I am not criticising), it seems to me that your own success will create a tendency for the bigger dealers to try and capture the whole business, from the field right through to the finished cloth?—

I do not quite agree with that, because I do not see how it can in practice. After all, the results of our efforts would be to introduce better types of cotton and, finally, to get our markets on a proper legalised basis, in which case the benefit must finally come back to the grower, as he is going to get a better price for his produce. (*Mr. Burt*): Then there is the value of improved varieties of seed; if the Agricultural Department can give the small grower improved varieties of seed, he can secure the advantage of growing a superior variety almost as well as the large grower.

48,299. *Professor Gangulee*: Apart from the question of a representative on the committee, has the grower any opportunity to appear before you, or to transmit any information, or even any means of airing his grievances before you? Have you any machinery through which he can approach you?—No, there is no machinery. If any problem arises we usually invite the parties concerned to meet us and talk the matter over. We had a case only a very short time ago in Karachi, in connection with a grievance raised by the Indian Merchants Chamber there. We got their representative to come down to Bombay and we discussed the position, as a result of which we think that we shall be able to bring about reasonable working arrangements for all the parties concerned. We do not ourselves work in a watertight compartment, it is rather the other way about; we are always ready to receive, to welcome grievances and problems from all sides; we have a perfectly open door in that respect.

48,300. *Sir Chunilal Mehta*: Did you not get into touch with the actual grower in Surat and with the cotton market in Dharwar?—(*Mr. Burt*): Yes; two or three members of the Committee went up to Surat and met about 300 growers, with whom we had a discussion in the vernacular.

48,301. So also with the growers in Dharwar?—Yes, we had a meeting in Bombay, where representatives of the co-operative cotton sales societies met us. I also visited Gadag and Hubli.

48,302. Do you have any meetings with the Provincial Cotton Committees? Is there any regular procedure for attending the meetings of the Provincial Cotton Committees at all?—I attend as many meetings of the Provincial Cotton Committees as possible; I have just come back from one at Nagpur. (*Sir Joseph Kay*): What we generally do is to get their proceedings sent to us and we discuss those proceedings at each of our meetings.

48,303. *Mr. Kamat*: Regarding this last point raised by Mr. Calvert, is it not also the case, even in the co-operative movement, that, for instance, in a co-operative bank the smallest man in the village is not directly represented?—Mr. Madan can tell us more about that, I think, and also Mr. Calvert.

The most intelligent man comes in to represent their views and not necessarily the smallest man!

48,304. With regard to this general work of the Central Cotton Committee being good on the whole, it has been suggested that similar All-India central committees should be set up for other staple crops. If that suggestion were to be accepted, there would be, say, something like five or six other All-India central committees. Are you in favour of the principle of setting up committees for wheat, jute, sugarcane, oilseeds, and so on?—(*Sir Joseph Kay.*) If I may say so, that is a little outside my province here. I believe Mr. Burt, when you come to examine him, will have something to say in the matter.

48,305. *Mr. Kamat*: With reference to the marketing of cotton, a Bill has been drafted, and I want to know if there is any provision therein making it compulsory for a market committee, if set up, to have also a go-down for

the storage of cotton left unsold at the end of the day?—No, that is not in the Bill.

48,306. Do you not apprehend that the absence of any provision for storage will be a handicap for a man who wants to hold over his cotton for better terms?—I will go so far as to say this, that it would be a very valuable and a very welcome acquisition to have storage accommodation, but there are some practical difficulties in the way.

48,307. During our investigations recently at Akola, one of the complaints made was that after a cartload of cotton began to be weighed, inferior cotton was found inside, and disputes arose; then the grower was in a predicament; he either had to take his cotton back home or he had to find a place in which to store it?—(*Mr. Burt.*) One of the suggestions we made, after the Berar inquiry which we conducted, was that the question of providing some form of warehousing should be worked out. This will have to be done provincially, and as a matter of fact I discussed the matter only last week with the Provincial Cotton Committee at Nagpur, and they are making inquiries. Some co-operative commission shops have been started, one at Akola, and they are inquiring as to whether commission shops can afford storage facilities to growers who bring their cotton to the market but for some reason or other are not able to dispose of it the same day. It is certainly a very important point.

48,308. If that is an important point, then do you not think that a Bill such as is now under consideration would be fatal, in the absence of storage provision, from the point of view of the grower?—No; on the contrary, although conditions in the Berar markets are not entirely satisfactory, they are far better than the conditions obtaining in the Khandesh markets. In Berar you have some semblance of order and fair dealing, whereas that is not the case in Khandesh where the cultivators are even more greatly hampered than they are in Berar.

48,309. *Dewan Bahadur Malji*: What is the qualification for cotton growers' representatives of your Committee? Do you nominate or elect?—(*Sir Joseph Kay.*) They are nominated by the Local Governments.

48,310. You have no voice at all in it?—No, not as a Committee.

48,311. Is there any arrangement for interpreting the proceedings, in case actual growers are brought in?—No, but it is possible to have proceedings translated.

48,312. But there is no arrangement so far?—It has not been necessary so far. (*Mr. Burt.*) If we had a grower who spoke in Hindustani, practically every member would understand him; if he spoke in Telugu we should have difficulty.

48,313. You are anxious to improve Indian cotton?—(*Sir Joseph Kay.*) Yes, that is our work.

48,314. So far the attempt which has been made has been on the actual product; you have not looked into the interior operations, commencing from the seed right up to the production of the commodity?—I think that is really the work of the provincial Agricultural Department; where our work tells is that when a new type of seed or a new variety of cotton is sent to us, we advise the provincial agricultural officer whether it is going to be a saleable type, and whether it is an improvement or otherwise.

48,315. Do not you think something more is necessary in the way of investigation at the earlier stages?—Not within the functions of the Central Cotton Committee.

48,316. There is no authoritative publication from the Indian Central Cotton Committee, monthly or bi-monthly?—No.

48,317. It would add to the utility of the Committee if such a publication were issued?—We issue an annual report giving a resumé of our year's work, but I take it you are suggesting that something further in detail is required for the grower. I am not sure whether it would assist, unless the functions of the Central Cotton Committee were very much changed. The grower is our greatest care; we openly state that we are out to improve the lot of the cotton grower.

48,318. Would you welcome any such publications from some responsible quarter?—We would welcome them very much if they were undertaken by the provincial Agricultural Departments who can get in touch with the actual grower much more easily than we can.

48,319. I find that your work extends over the whole of India?—Yes.

48,320. Would it not be better if you had some provincial committees?—We have Provincial Cotton Committee in each Province.

48,321. Do they issue any such publication?—No.

48,322. Would you welcome it from them?—Yes, we would welcome it from them, through the Agricultural Departments with which they are in touch.

48,323. I am not sure whether propaganda is part of your functions, but if it is to any extent, do you think any superintendence at the stage of the cotton press would avoid further trouble?—As I said before, I am a strong advocate of propaganda of any kind so long as it is thoroughly organised and worked on a proper basis; but the propaganda which occurs to me to be most necessary is propaganda in regard to the cultivation of the soil. The market side is fairly efficient; what is wanted is for the grower to get more out of his land with the use of improved implements; he is the man who needs the help; it is not the trade side that needs assistance.

48,324. Could the commercial side, marketing facilities, be looked into by your Committee, provincially, of course?—I think you would have to introduce legislation for proper organised marketing, of which we are strong advocates; and then the application of the law would be a matter for the Provincial Governments.

48,325. Would you require representation of your committee on the market committees?—No; but what we have always advocated is strong representation of the grower himself on the local market committees.

48,326. Are you in favour of standardisation of weights and measures?—We should like to abolish all the malpractices which exist and the allowances which, as you have indicated, are given; we want to stamp that all out as quickly as possible.

48,327. You leave the supply of seeds to the Agricultural Department?—Yes, we submit that is entirely within the province of the Agricultural Department.

48,328. Could you give any forecast of your future staff requirements?—All I can say in reply to that is that we are turning out cotton workers fairly rapidly now; the Agricultural Departments in the main have filled the gaps which existed when the Cotton Committee sat in 1917 and 1918; we still think there is tremendous scope for cotton workers, and with these eight research scholarships per year which we are giving we ought to turn out quite a number of efficient cotton workers. In my view the country is still very short of cotton workers.

48,329. *Sir Chunilal Mehta*: Do you get applications for financial assistance in excess of your funds?—No, we have funds in hand to-day, and we are prepared to help with new and urgent problems which Provincial Governments cannot finance themselves.

48,330. It is mainly research, is it not?—Yes, but not absolutely research: pressing questions.

48,331. Other things besides research?—(*Mr. Burt*): The only thing we can do in addition to research is constructive work for the improvement of cotton marketing and such work as these economic enquiries into the finance of the cotton crop, which we are continuing. The Cotton Cess Act limits our powers of expenditure pretty tightly.

48,332. So that I suppose you have some surplus now which you have not been able to use?—We have a surplus, but we are now spending more than our annual income; we are drawing on that surplus. (*Sir Joseph Kay*): The funds of the Committee are guarded very carefully by the trade members, because there would be a tendency, unless they were very strongly guarded, for Agricultural Departments in the Provinces simply to get funds out of the Central Cotton Committee to save their own funds which they have to get from general revenue. We do not want that; we want to supplement revenue; we are prepared to pay so long as we are on new development work.

48,333. Research into machinery to improve the cultivation of cotton and increase production would not be part of your work, would it?—That would be outside our scope. (*Mr. Burt*): I do not say it is specifically excluded; anything that is definitely research work we are open to consider.

48,334. Have you come into contact with any Ministers of Agriculture?—We have had, as Members of our Committee one ex-Minister, and at least one future Minister.

48,335. Not belonging to this Province?—No.

48,336. Is there really any direct contact between you and the Ministers of the various Provinces?—(*Sir Joseph Kay*): No direct contact.

48,337. You have not had any meetings, or they have not approached you for guidance in any matters?—Yes, there have been one or two occasions when problems have cropped up; at one meeting I think you yourself presided.

48,338. I was not Minister then?—(*Mr. Burt*): At an earlier conference; you were Minister for Agriculture when you presided over a conference on the Cotton Transport Act. (*Sir Joseph Kay*): When these difficulties arise, we are only too pleased to attend conferences and try to arrive at a solution. (*Mr. Burt*): I have attended several conferences with Ministers by invitation in other Provinces besides Bombay.

48,339. *The Chairman*: Can you tell me whether we have in these notes a definite statement of the accumulated funds of the Committee?—(*Mr. Burt*): I think we have given that in the printed memorandum; the accumulated funds are in round figures 25 lakhs. We publish a statutory statement every year.

48,340. *Sir James MacKenna*: The Members of this Committee are entirely honorary and voluntary?—Yes.

48,341. No fees are paid?—(*Sir Joseph Kay*): No; travelling allowance is paid to up-country members. I should like to say this: it is astounding to find that one can get such men together, representing all sections of the trade, to work in this way for what I call the common good on the development of cotton; I have been a member of the Committee since its inception; we have had a wonderful response from all sides: the representatives of growers, who may not be actual growers themselves, agricultural officers, and particularly the trade members on whom the bulk of the work falls. The Committee has worked extraordinarily well; I think it is one of the most remarkable committees that has ever been created in India. The work it does is beginning to tell and is beginning to be appreciated.

48,342. *Professor Gangulee*: Your work depends on the cotton cess?—Yes.

48,343. The income from the cotton cess of course fluctuates; does that affect your research?—We are quite prepared to draw on our accumulated balances for research work, and if those accumulated balances disappeared, we should have just sufficient income to maintain, first our administration, and secondly our institute at Indore and our Technological Laboratory. They take about 4 lakhs a year. The balance which has been carefully preserved is available for any problems which might be put forward by any Province. (*Mr. Burt*): As regards accumulated balances, the original proposal for the cotton cess was 4 annas a bale. The legislature gave us 4 annas for the first three years and 2 annas per bale after three years. The three years during which we had 4 annas were the years of the biggest export of cotton India had ever known and our funds benefited accordingly. But a limitation was placed on our powers of expenditure, for the time being, by the Government of India. We were not allowed to enter into schemes involving recurring expenditure in excess of our estimated annual income from the 2 anna cess. Now that we have built up a big reserve, we have been allowed to draw on that reserve to add to our annual expenditure.

48,344. *Mr. Calvert*: Sir Joseph, I should like to ask you a question about a somewhat intricate problem. It seems that a large part of the success of the Indian Central Cotton Committee is due to the fact that you have in India the actual manufacturers of cotton cloth, whose interest it is to get a high grade of quality of cotton, and therefore they are in complete sympathy with the grower of that cotton. Now, assume for a moment that you are dealing with long staple quality of cotton which is no use at all to the manufacturer in India but the manufacturer is abroad and therefore not available as a member of this Committee. Do you think the same success would attend the development of such long staple cotton?—(*Sir Joseph Kay*): Indian spinners and manufacturers are represented on the Central Cotton Committee by four members; our local cotton trade, the East India Cotton Association, by one member; and shippers and merchants by representatives nominated by the various Chambers of Commerce. So that, whatever happened would not make any difference in my opinion, because there has been a tremendous export trade for Indian cottons for years and years. I do not think that would make any difference at all.

48,345. But your manufacturer stands out against malpractices which the middleman may sometimes indulge in?—That is so, but your shipper is willingly paying the cess just as much as your manufacturer is willing to pay the cess to keep the work of the Committee going. The income from exports is twice the income from the mill manufacturers; so that, the people who are paying the greater part of the fee, the cost of the committee, are the shippers.

48,346. I have raised that particular point because it will be of considerable importance when we come to discuss the question of other crops. It occurs to me that your success is due to this fact, that your final process has taken place in India?—I do not agree with that view at all, because of the tremendous export trade, which represents a very considerable portion of the total crop.

48,347. You think there is nothing peculiar to the cotton crop which accounts for its success, the absence of which would prevent success in other crops?—No, because we have never advocated merely the growing of long staple cotton; that has not been the policy at all. The idea seems to be abroad, and it is quite a mistake, that we are out merely to develop the crop of long staple cotton. That is certainly an important part of our work, because there is not enough long staple cotton in India. At the

same time, we want to have bigger yields per acre in cottons which can be marketed at a price at which the world can afford to buy cotton. When improvements are made, they are not merely for long staple cotton; there is no good working to that end. What you want in addition to long staple cotton, of which there is a shortage, is to increase the yield per acre of suitable cottons of shorter staple. There is a tremendous demand in the world for shorter staple cottons. What you want is to secure better development in India, so that the grower will get the best out of his land, and so that he will get better prices, because he is getting better cotton with the same amount of labour. I do not think for a moment that your view is one with which I can agree.

48,348. It is not a view; it is a problem. There is nothing peculiar in the cotton crop which accounts for the success of the committee?—The peculiarity was that the cotton crop had deteriorated before we took up this work.

48,349. There is no factor in the case of cotton which does not obtain in the case of other crops?—I am not prepared to say.

48,350. *Professor Gangulee*: Is the export of cotton responsible for the success that you have had?—No; I do not think the ratio of export is any bigger now than it was before, but the crop has increased by two million bales during the last few years.

(Sir Joseph Kay withdrew, and Mr. Burt's examination was continued.)

48,351. *The Chairman*: Mr. Burt, before you took up your present duties, you were, I think, Deputy Director of Agriculture in the Central Circle of the United Provinces, which office you held from 1908 to 1921, and you were also Director of Industries in the United Provinces from June, 1912, to December, 1914?—Yes.

48,352. Have you held any other positions?—No, those are the only positions that I have held in India.

48,353. I observe from page 42 of your note that, in considering the problem of co-ordination as between province and province, you are more concerned with the danger that lack of co-ordination may result in certain problems not receiving attention than you are with the danger of the work being duplicated?—Yes. Duplication of work is not in itself, in my opinion, an evil where research work is concerned, but there is a limit to the amount of research work which can be financed from public funds.

48,354. In your view, is the setting up of the Plant Research Station at Indore within the four corners of the recommendations of the Committee?—The Indore scheme originated in this way. The Government of India had a scheme under consideration before we came into existence. We found that was hanging fire. We considered that a central cotton research station was needed, and we took over that scheme. It is outside the recommendations of the original Indian Cotton Committee.

48,355. Is it your view that what you are doing is work which the Imperial Department of Agriculture might have undertaken?—Yes.

48,356. An All-India Central Research station?—We considered that at least one All-India Central Research Station for cotton was necessary.

48,357. On this question of research, I should like to ask you whether you think that the irrigation aspect is receiving sufficient attention?—No. That is a matter which has been discussed on more than one occasion. For example, in the All-India Board of Agriculture we have constantly urged the necessity for experimental work both from the agricultural and from the irrigation standpoint, and I do not think that there is enough being done in that direction.

48,358. Have you any views as to where that work should be done?—No What I am anxious to see is that the work is done.

48,359. Would you tackle the problem mainly from the agricultural point of view, or would you tackle it mainly from the irrigation angle?—I think it wants to be tackled from both aspects by the departments concerned. For example, I think that in the Punjab some very good work is being done by the Irrigation Department. They have an experimental division which is tackling a number of problems; they have now, as a matter of fact, a Soil Chemist attached to that Division.

48,360. Do you think that there is any need for research by the Central Government into these problems of irrigation, as they affect agricultural problems?—I am not quite sure how far the Central Government could undertake the work now that irrigation is entirely provincialised. There is very great need for such research, and the results would not be merely provincial in application. Work done in the Punjab, for example, would apply to the whole of Northern India.

48,361. *Professor Gangulee*: What about the major problems of agriculture connected with irrigation? For instance, the problem of water-logging? That is really a major problem?—There is both an engineering and an agricultural side of water-logging. I should view the problem as being the same type of problem for which the Indian Central Cotton Committee is giving research grants, that is to say, problems that have to be investigated in a particular locality but which are of All-India, or more than provincial, interest.

48,362. *The Chairman*: On page 46 of your note you offer a suggestion, referred to by Mr. Calvert, that the principle of the organisation of the Indian Central Cotton Committee might be applicable to crops other than cotton. You go on there to point out the need for a most careful reconnaissance of the position, and you say that in the case of cotton such reconnaissance as has been completely carried out has been most useful?—Yes; I think it is the foundation of our success.

48,363. There are two questions on this point. For instance, in the case of wheat, how do you suggest that an organisation of this nature could be financed?—I think, in the case of wheat, the organisation should be financed entirely by the Central Government. I do not think it should be financed by a cess In the case of cotton, you have manufacture in the country, you have exports, and you have only a nominal amount of direct village consumption. In the case of wheat the exports abroad are small compared with the internal consumption.

48,364. When you say "financed by the Central Government," I take it that a non-lapsing fund, set aside by the Central Government, should be at the disposal of the Committee?—Yes, that is my idea. With regard to the way in which it can be done, the Committee might be given fixed annual allotments; and allowed to build up a reserve fund.

48,365. A non-lapsing fund?—Yes. I think that is essential to proper provision for research.

48,366. The purpose is to assure continuity?—Yes. That is my point.

48,367. And an assured future which makes it possible for the Committee to frame its budget and to engage its officers with confidence?—Yes.

48,368. Mr. Calvert's point, I understand, is this, that with regard to cotton important advantages have been enjoyed by your organisation owing to the fact that all stages from the sowing of the seed to the manufacture of the final product take place in India and within reach of your organisation?—Yes.

48,369. Whereas, for instance, in the case of wheat, an important market overseas is not represented in India by the millers themselves, but only

by those who buy on their behalf?—That is so; but we have a parallel position in cotton: the Japanese, Continental and English spinners have not effective representation on our Committee, and there are flour mills in India.

48,370. But in the case of wheat, you say you have mills in India, and I have no doubt that as regards the Indian market for wheat they would be represented on the Committee and would be in a position to speak with authority on all matters concerning the Indian market. Is it your view that, so far as the European market is concerned, the buyers of wheat in India for the European market would have the necessary technical knowledge at their disposal in order to contribute substantially to the discussions of the Committee?—No, they have not the same amount of knowledge as a direct representative would have.

48,371. So that to that extent organisations designed to forward the interest of crops other than cotton might be less effective than yours has been?—Yes. In my written statement I have stated that it is not suggested that exactly the same organisation would do, but I feel that the reason why we have been so successful is that there was a careful reconnaissance and then the organisation was planned to deal with one crop. I think if you had a similar reconnaissance for other crops you might arrive at the same position; the essential thing is to have the commercial community represented on any such committees.

48,372. You have been an officer of the Agricultural Department and therefore you have had to consider this problem from the point of view of all crops; what other crops do you suggest might be susceptible of organisation on the plan of the Indian Central Cotton Committee?—The two which most readily occur to me are jute and sugar.

48,373. How about tobacco, a small but valuable crop?—I should not like to hazard an opinion on that.

48,374. Oil seeds?—I do not know enough about it.

48,375. *Mr. Calvert*: When you say sugar, are you speaking of sugarcane for sugar or sugarcane for *gur*?—Both.

48,376. They are very different, are they not?—No, the cane is identical; the problem of producing a good cane, whether it is for making white sugar or for making *gur*, from the agricultural point of view is the same in my opinion.

48,377. *Professor Gangulee*: What about those two most important cereals, *juar* and *bajri*?—I do not think that there you have the same commercial interest as you have in the case of staple crops like cotton and jute.

48,378. *Mr. Calvert*: The production of sugar from sugarcane involves highly technical processes and the employment of highly trained specialists?—Yes.

48,379. While the production of *gur* from sugarcane is a simple operation?—Yes, but from the agricultural point of view, if you produce a sugarcane which will make good white sugar, you have also produced a cane which will produce good *gur*.

48,380. Where do you get your trained staff for the production of *gur*?—You have just told me that in *gur* production no trained staff is required.

48,381. And therefore you could not have a committee like this?—But you could have a committee on which your white sugar manufacturers would be represented. I should like to add that as soon as highly yielding canes are introduced with intensive cultivation a need arises for a market for the cane as the average cultivator is often unable to crush and boil substantially

problems is to replace the present large importations of factory sugar by home-grown sugar. Hence the development of more modern methods of dealing with cane is an important question in such Provinces as Bihar and the United Provinces. I do not suggest that modern factories for white sugar manufacture are the only desideratum. Improved methods of manufacturing *gur* and *rab* are also needed.

48,382. *The Chairman*: You point out at one part of your proof that research carried on at Pusa, particularly into the wheat crops of India, has been successful and has made a material contribution to the welfare of cultivators in the Provinces?—Yes.

48,383. Do you think that the extent to which Pusa has shone in the past has been due to its merits as a central station, or due to the fact that, in the past provincial research was virtually non-existent?—I think it is largely a matter of its own merits. If you take the work on wheat, it is a most outstanding piece of successful work. It is perfectly true that in the early days we did suffer from shortage of staff in the Provinces and that the provincial staffs have lagged behind; but I do consider that a central institute is the best way of tackling some of these very big problems.

48,384. Is it really the merits of central research or the merits of Mr. Howard?—I think it is both; I have the greatest admiration for the work of Mr. Howard, but I do not think, if Mr. Howard had been working in a Province he would have done the same work for wheat in India as he did at Pusa.

48,385. Why?—Because working as a wheat expert for what really came to be the whole of Northern India, he studied the whole of the wheat varieties of India; the most successful wheat for the United Provinces was not one of United Provinces origin at all; I am not sure of its origin, but I do know that it was a selection of wheat which was not from the United Provinces. He took a very much broader view of his work than he would have done if he had been working in a Province.

48,386. Do you think the extent of his responsibility affected his outlook and his work?—Yes, and the facility which he had for getting round and seeing what was going on in other parts of India and what material there was; it is extremely difficult for a provincial officer to do that.

48,387. When do you expect that these surveys into the marketing of cotton that your Committee has been carrying on will be completed?—They may continue for several years; we have just undertaken another four to be carried out in the coming season; at present, we cannot handle more than about four investigations a year.

48,388. Have you employed your own officers for this work?—No, we have had to borrow men from the Agricultural Department.

48,389. Are you satisfied with the qualifications and calibre of the men you are employing for this work?—I cannot say that I am, altogether; we have had to do the best we could with the material available.

48,390. Have you made plans to try to improve the qualifications of those employed on the inquiries as to marketing?—No, we have not tackled that yet.

48,391. Is it not of supreme importance that surveys should be carried on by trained persons?—No, I think the first essential is to choose a man for the actual village investigation who understands the cultivator and who can get his confidence; where the skilled man is required is in framing the questionnaire and in interpreting the results.

48,392. It has been represented to me that the ginning and pressing factories show signs of forming rings in order to keep up the costs of the operations which they carry out, to the detriment of the price gained by

the cultivator; do you agree with that?—That is a long standing complaint; these ginning and pressing pools have been going on for very many years; I think, if anything, there is less complaint on that score now than there was ten years ago. I do know for a fact that a number of these pools broke down.

48,393. Has your Committee been interesting itself in that particular problem?—We did discuss that question, and I think we came to the conclusion that we could see nothing that we could do. I do not see how the formation of combines of that kind can be stopped.

48,394. Do you agree that since the price of cotton is controlled in great measure by the world demand, any unnecessary cost of ginning and pressing will, as a rule, be paid for by the cultivator?—Yes, if ginning and pressing rates are unduly high, undoubtedly the cultivator will suffer.

48,395. Do you think that is a connection in which your Committee might make some further research and if necessary take some action?—It is a thing we have constantly had under consideration; we have seen no step that we can take at present. One realises that there are difficulties; in certain areas there are too few ginning factories, and ginning and pressing factories have to be encouraged; then the place becomes fashionable and there is a rush to set up ginning and pressing factories there; the result is that there is not enough work for them all and the pool follows.

48,396. Is the method of forming these pools to fix the actual cost of the operation by agreement between the factories, to raise the margin of profit above what I may call the normal competitive level, and thereafter to distribute a share of such surplus profits as a bonus to all factories *pro rata* according to the number of machines or gins in the factory?—Something of that kind.

48,397. Is that pretty near the mark?—Yes. What actually happens is that sometimes one or two presses are kept closed if there is not enough cotton to keep them all going properly; those that are closed draw their share of profits from the pool.

48,398. Is it easier to judge of the quality of cotton when it is presented as *kapas*, or when it is examined as a bagged article?—That is a matter of opinion. Buyers for export are rather inclined to increase their purchases of *kapas* because they can supervise the ginning and pressing and their men get accustomed to judging the cotton in the form of *kapas*. Personally, I would far rather judge *kapas* than cotton, but the average cotton buyer at Bombay will not look at *kapas;* he is used to judging cotton; he will even hesitate to give an opinion on a sample of unbaled cotton. It largely depends on the form in which the particular man has gained his experience. When it is a question of purity between two types, it is much easier to distinguish mixed cotton in the form of *kapas* than in the form of ginned cotton.

48,399. Then this much emerges, that it ought to be possible, given an ideal form of market, to ensure to the cultivator who brings in his *kapas*, a fair price for quality?—Yes, there is no inherent difficulty in that.

48,400. Do you think that quality, as a factor, is receiving its rewards so far as the cultivator is concerned?—No. I do think that the cultivator is getting the full price; he is getting a fairer reward than he used to. But the price that the cultivator gets will depend rather more on the general reputation of the tract than on the quality of his own sample, unless he is producing quite a large quantity.

48,401. The Commission asked Sir Joseph and yourself some questions as to the representation of growers on your committee. How about the representation of growers as such on committees controlling markets? Have

you studied that problem?—Yes; we consider it absolutely essential to the proper working of market committees that cultivators should have representation on them.

48,402. Does the same difficulty arise of finding a man who has sufficient experience and is sufficiently vocal to hold his own on the committee, and who at the same time is a typical small cultivator?—No, because, in the first place there is no case of requiring a knowledge of English, and secondly, there is no real need of literacy at all; there is no necessity that the man should be able to read and write at all. Perhaps not the small cultivator; but the medium cultivator is fairly vocal once he starts talking.

48,403. I am surprised to see that you do not think that such a man need read or write. Do I understand you correctly?—I say that it is not essential; it is desirable.

48,404. Where no vocal representative of the cultivator is available, do you think that the Department of Agriculture in the Province should have the right to nominate a representative to sit on the market committee?—I think that is a point worth considering.

48,405. Where the cultivator is unable to look after his own interests, do you regard it, broadly speaking, as the duty of the Department of Agriculture to guard those interests?—Certainly, yes.

48,406. Are you hopeful of being able to prevent abuses in markets in connection with disputes after weighment?—Yes; I think that a market committee with cotton growers' representatives on it should be able to establish some system of settling such disputes. Exactly what form it would take is a matter that would have to be worked out locally, but they might arrange some simple form of arbitration, and one or two simple amendments of local bye-laws would probably do a great deal to reduce complaints. For example, there is one market in the Central Provinces where, if a buyer refuses to take delivery of cotton after part of the cart has been weighed, he has to re-load the cotton at his own expense. That is purely a local rule, but it is very salutary.

48,407. You have provided us with a draft of the Bombay (District) Cotton Markets Bill, being an Act to provide for the establishment and better regulation of cotton markets. In the Bill, as I understand it, the committee set up to control the practice of marketing would not have any jurisdiction in the yards of ginning and pressing factories?—Yes; under this Bill they would have such jurisdiction.

48,408. Then, I missed the words; where are they?—It really comes under the definition of "market proper."

48,409. The definition is: "'Market proper' shall include all lands within such radius from the centre of the market yard as the local Government by notification in the Bombay Government Gazette may prescribe; in particular, it shall include all cotton mills, ginning and pressing factories and their compounds within the notified area."—In our Markets Bill it is included. The Local Government propose to define the market proper by rule, as is done under the present Berar law; we propose to do it in the Bill itself; but it is mainly a matter of legislative convenience.

48,410. In this case, would you be in touch with the proper department of the Government of Bombay?—I have seen their draft Bill six times since my Committee made recommendations.

48,411. So this particular point has received attention?—Yes.

48,412. And you are hopeful that, when the Bill is finally passed, the market committee will be able to control the practice and to ensure justice being done between buyer and seller when the dispute takes place outside the market proper?—Yes.

48,413. That, in your view, is the solution of this particular problem?—I think so.

48,414. Do you think that where a suitable site exists outside the town it would be better to have a market outside the town rather than inside it?—That is a matter of local convenience; I have no strong views on it.

48,415. Is it not in some degree a matter of high octroi charges in some places?—Such charges vary so much that all I can say is that one must suit the convenience of the people bringing cotton to market. Sometimes, if you set up a market outside the town, they are deprived of conveniences they were accustomed to in the past.

48,416. Does not a great deal of congestion often take place where the market is in the centre of the population?—Yes; that is a matter of planning. I have in mind a market in Cawnpore; it is not a regulated market, but it is a large and convenient market, and there is very little congestion, although it is an old unregulated market in the middle of a big town.

48,417. What do you think about open auction in public markets as a system of sale?—I think it is most likely to be successful when you are dealing with a new variety introduced by the Agricultural Department and which has established its reputation. As a method of sale of an old variety, I do not think it is so successful, because it is not liked by the best class of buyer.

48,418. Why is it disliked by the best class of buyer?—In connection with auction sales conducted by co-operative sales societies in Gadag and Hubli, the buyers have told me that they do not like buying *kapas* in auction, because by looking at the small sample that is passing round it is impossible to judge the whole lot, and they do not like taking risks. If they buy on the usual trade terms, if the cotton is below the sample, there is a recognised way of dealing with it. I think that the best class of buyers only go to the Gadag and Hubli auctions because of the improved variety which is being sold there.

48,419. On page 29 you are dealing with our Question 22 (*b*) (iii) on co-operation. That is the note of the Cotton Committee themselves. What is your authority for stating that it would be outside the terms of the existing Co-operative Societies Act if members were invited to engage in binding contracts with a selling society?—I have discussed this question with various co-operative officers, and they have told me that they do not think it could be done under the present Act.

48,420. Do you think that it is possible to conduct successfully, over a series of years, any selling society, the members of which do not bind themselves by contract to supply to that society all their produce for sale?—Some societies have worked reasonably successfully.

48,421. Over a period which covered years of large falls in prices as well as years of high prices? That is the test, is it not?—There are so very few societies of this type in India that it is rather difficult to answer the question. These societies have been going on for a fair number of years. We do know they have got into difficulties sometimes, and sometimes those difficulties were due to the absence of a bond.

48,422. In the matter of the financing of the cotton crop, I understand that the information at your disposal at the moment is that the cultivator is reasonably well able to finance the marketing of his crop, and it is the earlier stage, the growing stage, that requires further financing?—That is as regards the three areas we have investigated: in Khandesh, Berar and a small area in North Gujarat. I cannot say that is true for the whole of India.

48,423. And in these areas, your investigations tend to show that a cultivator is himself actually able to hold up his crop for a better market?—Our investigations show that he has actually done so in the year of investigation.

48,424. Was that the conclusion reached by you personally or by the whole committee?—It was the conclusion of the Sub-Committee which considered the detailed reports.

48,425. Have you cross-examined your investigators?—Yes; we had them down here and went through their detailed note books, after tabulating the results.

48,426. You could not shake them on that point?—No. There was a record of the actual transactions that took place.

48,427. If a *bania* or moneylender had been actually financing the crop, but using the storage accommodation of the cultivator during the period the crop was held up, do you think that your investigators would have known?—Do you mean that the *bania* was using the cultivator's storage as a convenience?

48,428. Having paid the cultivator, say, 75 per cent. of the estimated value of the crop, using the cultivator's storage in order to hold it up?—No; because, another surprising result was that most of the money-lending in the villages investigated was not done by people who bought cotton; the cultivators either sold their cotton in the open market or through a travelling buyer; they did not sell the cotton to the men who lent them money.

48,429. *Dr. Hyder*: On the question of improved methods of statistics, could you tell us, from your experience, how you would cope with the difficulty of valuing the factor of seasonal conditions?—I am afraid I cannot help you very much on that. I have read a good deal about the American system of valuing the conditional factor, and I am rather inclined to think that their difficulties are much the same as our own.

48,430. The condition factor is the resultant of a number of other factors. Can we isolate one factor and correlate conditions to that factor, say, the rainfall in any particular year, or would you take all the circumstances into consideration?—I do not think we can possibly predict from a rainfall, and half-a-dozen other factors, as to what the effect on the crop is likely to be. The condition factor is simply an integration of a number of opinions received from people scattered over the tract. In India the condition factor is worked out by the Director of Agriculture from the *patwari's* reports (village accountant's reports); the village accountant reports that the crop is 8 or 9 annas or 6 annas in his village; those village reports are worked up and, as I said in my note, we try to find out what the *patwari* means when he says the crop is 6 or 8 annas. In the old days we tried to make him understand what we meant by 6 or 8 annas; we now let him report his own ideas and try to interpret them.

48,431. The standard in the mind of the *patwari* is the 16-anna crop, is it not?—The *patwari*, as I know him, will very rarely admit that the crop is a 16-anna crop; the 16-anna crop to him represents a bumper crop, and he would very rarely return a crop as being 16 annas; at any rate, he does not do so in practice.

48,432. With regard to the creation of a definite research fund, you want that to come out of central revenues?—Yes.

48,433. By some kind of a cess, or allocation from general revenues?—I think, considering the great variety of problems to be dealt with, an allocation from general revenues, to my mind, is the best way of dealing

with it; cesses can be justified in special cases; but dealing with agriculture as a whole, I think the general revenues should bear the charge.

48,434. Take your own crop, which is cotton. Can you give us an indication of the upper limit to which you are prepared to go as regards this particular cotton cess?—You mean how much per bale?

48,435. Yes, how far you are prepared to go in the upper direction?—The original recommendation of the Indian Cotton Committee was 8 annas and if we had shown that we required that amount immediately I do not think there would have been any serious objection on the part of the Assembly or of the cotton trade to giving us 8 annas.

48,436. Could you tell us what particular advantages this country would obtain if it were represented on the International Institute of Agriculture? —I think you would get a lot of information on agricultural development, agricultural policy, and agricultural legislation in other countries, which at present is extremely difficult to get. I think that one does want to know more about what is happening in other countries.

44,437. *Sir Chunilal Mehta*: Would you have a central fund for research only?—That was what I was contemplating.

48,438. Would you have some kind of a constitution, of the type of the Central Cotton Committee, for a crop like *juar*?—No; I do not think that in the case of a food crop which is mainly consumed in the country, there is any need for a committee of the type of the Central Cotton Committee. You would need some central organization to administer research funds, but I would not suggest that a crop like *juar* should have a central committee.

48,439. What sort of an organization would you have for this crop, which is one of the biggest in India?—I think the first thing you wanted is one or more special research stations situated where they can best work for the benefit of the country as a whole; probably such a station would deal with a group of crops.

48,440. Would you have it financed by the Central Government?—The Government of India can best help to develop agriculture in India by financing a work of this kind.

48,441. In certain parts of the country, attempts were made to develop a sort of drought resisting variety of *juar*. For that purpose would you not require the research station to be situated in those particular places? —There would always be a need for local study, but there is a great deal of general work which can be done in central stations if they are carefully sited, and this would help provincial Agricultural Departments to the extent of relieving them of some part of the enormous mass of work they have to do. To take the crop which you mention: I may be wrong, but personally I do not think the genetics of *juar* have ever been thoroughly worked out.

48,442. Do you know of any extensive research work being done on *juar* in India generally?—There is a good deal of work going on, but it is not my own crop, and I am afraid I cannot go into any great detail.

48,443. I was under the impression that very little work was being done compared with, for instance, the work on cotton or wheat?—There is no adequate work being done; of that I am quite convinced.

48,444. Do you think that there is any particular reason for that?—Yes, lack of staff and lack of funds in the Agricultural Departments.

48,445. Might it not be that it is not an export crop?—That might have a bearing on it. *Juar* is not a cash crop. I think the distinction is not between export and non-export crops, but between cash crops and village consumption crops.

48,446. Your idea of committees formed on the basis of the Central Cotton Committee would apply to a certain number of cash crops only?—Yes, there is a very definite distinction there.

48,447. The main crops, *juar* and *bajra*, would be out of it?—For those you want some organization; you want research institutes, but you do not necessarily want your committee.

48,448. What about rice?—I have never done any work on rice myself, and I would rather not answer that question.

48,449. In your work in the Central Cotton Committee in connection with marketing and in trying to see that the actual cultivator gets the utmost value for his crop, do you not require to be in constant touch with the Co-operative Department?—Yes.

48,450. Are you, in fact?—We do our best to be in touch; we are not in as close a touch as we would like to be.

48,451. Is there any reason why that is so?—Mainly owing to the distance between Bombay and other parts of India. We have a co-operative representative on our committee, but it is very difficult to keep in touch with Co-operative Departments throughout the whole of India.

48,452. The Co-operative Departments are mostly under the same Minister who deals with agriculture and if you are in touch with the Agricultural Department, would it not be possible to be in closer touch with the Co-operative Departments as well?—There is a great deal of the Co-operative Department's work with which we are not very closely concerned. Their work on primary credit societies, for example, is largely outside the sphere of the Central Cotton Committee. If Co-operative Departments will devote more attention to co-operative buying and selling, I am absolutely certain that we shall have to ask for more representatives of those departments on the Central Cotton Committee.

48,453. And yet you were examining, in these particular studies, the indebtedness of the grower and whether he has sufficient money to hold back the crop for better prices?—Yes.

48,454. The Co-operative Department is interested in that, is it not?—Yes, and we hope the results will be used to advantage. But it is not so much the culitvator's total indebtedness that we are interested in; we also want to know whether his debts hamper him in marketing his produce. We certainly did not obtain full information about his total indebteness.

48,455. Would you suggest that in Khandesh, where you examined these particular villages, the reason why the cultivator is able to hold back his crop is that Khandesh is somewhat exceptional in this, that the cultivator of Khandesh is fairly well off?—That may be so, but it was in regard to Khandesh that we were told in 1922, in Bombay, that the District Cotton Markets Bill would do no good because the Khandesh cultivator was very much tied to his moneylender, and that was one of the reasons why we chose that area for investigation.

48,456. Could you suggest an organisation, not quite like your Central Cotton Committee, but some other organisation for non-cash crops?—If I may say so, I think the organisation must be different because the problem itself is different. In the case of staple crops like cotton you have important trade problems; in the case of crops such as *juar* and *bajra* there is the need for research; and then, of course, seed distribution comes in as part of the work of the Agricultural Department, so that it would really come to an organisation for the distribution of research funds.

48,457. That could be done, as it is done now, by the provincial Agricultural Departments in co-operation with the Divisional Boards in the Provinces at all events?—I do not quite visualise that. My own view is that

if the Government of India are to help to improve crops such as *juar* and *bajra*, they can do so in one of two ways, either by special research stations, or by research grants for the investigation of certain definite, specific problems. I think it narrows itself down to that.

48,458. *The Rajah of Parlakimedi*: In the Sudan, are there only two varieties of cotton grown?—I think there are only two major varieties; I will not say there are only two agricultural varieties.

48,459. Did you have occasion to study how far they succeeded in restricting major areas to those two varieties?—I know they have set aside certain areas for certain types; of course, cotton cultivation in Sudan is a comparatively new development; it is a place where cotton cultivation is extending as irrigation extends, and in many respects they have got a clean slate, whereas we are dealing with a country where there is old-established cotton cultivation, a great variety of conditions and a great many varieties of cotton.

48,460. Do you think it is practically possible to restrict localities to the growing of two varieties?—That is the object of the Cotton Transport Act: no cotton or cotton seed from outside a scheduled area can be brought into that area. If, from the time when the Cotton Transport Act is applied to a given area, the Agricultural Department provides an adequate supply of pure seed, it is only a question of time before all inferior varieties are excluded, because there will be protection from all inferior seeds from outside.

48,461. Are you satisfied with what is being done on that point in the Provinces?—No, I should like to see the Cotton Transport Act applied to a much larger number of areas than it has been so far.

48,462. Is there a proposal of that nature from the Central Government, or recommendation made by the Central Cotton Committee to the Provincial Governments?—Yes, the Central Cotton Committee has made recommendations to Provincial Governments; some of them have been accepted and some of them are still being discussed.

48,463. India had its indigenous sugarcanes growing in different parts and, of course, the Department have successfully attempted to replace those inferior varieties with superior varieties and have created good canes for the cultivator. Do you think that sort of work is also being done with regard to cotton in the Provinces?—Yes, only on a much bigger scale than with regard to sugarcane.

48,464. In certain Provinces it is not being done, as far as my information goes; for instance, in Madras, sufficient work is not being done; do you not think sufficient pressure should be exercised to get the Provincial Governments to take up this work as they are doing, for instance, in regard to sugarcane?—My information is that Madras is doing quite well in regard to cotton research; we have given them two grants for research schemes; apart from that, they have their own Cotton Specialist engaged on the production of improved varieties.

48,465. I mean, in regard to propaganda work to induce ryots to take on these varieties wherever the soil is suitable?—I am not in a position to judge of the adequacy of the propaganda work in Madras; that is rather outside my sphere.

48,466. Do not you think there should be some sort of pressure from the central body to persuade the Provincial Governments to take up such questions?—No, I do not believe in pressure from central bodies; I believe in assistance from central bodies.

48,467. Very well, I will say guidance or persuasion?—The Central Cotton Committee has helped the development of cotton in Madras by

giving grants for more research; we have advised them to apply the Cotton Transport Act in certain areas, and they have done so, I think; that is what a central body can do.

48,468. *Sir James MacKenna*: In answer to the Chairman you said you were not particularly satisfied with the enquiries carried out with regard to marketing. Do you think a central economic section for the Central Cotton Committee is justified for the prosecution of such enquiries?—If this work develops as it promises, I think it would be justified.

48,469. You have had some experience of recruiting for research work on short-term agreements?—Yes.

48,470. Have you much difficulty in recruiting men on these short-term agreements?—No, except that at present there is a dearth of suitable men; so far as the short-term agreement itself is concerned, it is expensive, but I do not think it introduces any other difficulty. It is mainly valuable in obtaining the man who has already established a scientific reputation; I do not look upon it as a convenient way of recruiting young men who have had no practical experience.

48,471. What arrangements have you made with regard to a provident fund?—We have a contributory provident fund of our own.

48,472. Is it the same as the Government's specialist officers' provident fund?—Much the same, but it is rather better.

48,473. As a member of the Agricultural Department, what is your view as to the suitability of short-term appointments in the ordinary Agricultural Service?—As I have just said, it may be a valuable method of obtaining a man of established scientific reputation for a particular job.

48,474. *Professor Gangulee*: Do you employ a man for a particular item of research only?—We employ a man for a specific purpose, whether it be to undertake research on one problem or two.

48,475. *Sir James MacKenna*: In one Province it was suggested to us that the allotments of the Central Cotton Committee might be politically unwelcome, because they did not come before the Legislative Council with the budget proposals. Do you think there is anything in that objection?—No, I do not think there is; our grants are excluded funds; the expenditure from such grants cannot be put before the Legislative Council to be voted; but there is not the slightest objection to, and, in fact, we would welcome, the fullest possible statement before any Legislative Council as to the grants received from the Central Cotton Committee and how they are being applied. Every Local Government that has accepted grants has accepted the condition that they should be excluded funds, and I do not know of any practical difficulty in the matter.

48,476. An ex-Minister gave precisely the same answer as you give: that he could not see any possible objection to the present arrangement?—I do not think there is any objection.

48,477. What is the history of the pink boll-worm enquiry in the United Provinces?—A Government Entomologist was appointed to the United Provinces in 1921 as the result of the recommendation of the Indian Central Cotton Committee. In 1922 I learned that the Local Government were unable to provide the funds he required to undertake a major investigation on the pink boll-worm which he was anxious to take up. Then, in 1923 we were definitely approached, first by the Agricultural Department and then by the Local Government, to see if we would give a non-recurring grant to provide insect-proof cages; a grant was given amounting to Rs.34,000 spread over two years. Then the work developed and a certain amount of re-arrangement was necessary of the staff which the Local Government had provided for the scheme; they also were spending money on it. We then

gave a grant in connection with the expenditure on this cage work of Rs.9,000 a year; that is a recurring charge and a further non-recurring grant of Rs.10,000. Then, in 1926 we provided an additional research assistant at a cost of Rs.5,000 a year, who, as a matter of fact, is one of our own research students.

48,478. *Professor Gangulee*: Who paid for Mr. Richards' tour in Egypt?—The Local Government.

48,479. *Sir James MacKenna*: That is work which it is possible the United Provinces Government would not have been able to carry through without this assistance?—I think it would have been suspended; the United Provinces Government wrote that they were definitely unable to provide the money.

48,480. This is a very good instance of the sort of assistance you give?—Yes.

48,481. You have accumulated 24 lakhs of reserve against an expenditure of 18 lakhs; assuming you accumulated a similar amount of reserves in the future, do you think there would be any great objection to diverting part of your reserves to research in other branches of agriculture: for instance, the crops which come into the regular cotton rotation?—I think there would be a considerable opposition to that; the cotton trade in general consider that this is money provided by the industry for its own improvement. As I explained, we had temporary restrictions placed on the utilisation of our reserves by the Government of India; now we have been allowed to utilise them and there is no question of accumulating them.

48,482. That is the attitude the trade would take up?—Yes.

48,483. *Professor Gangulee*: Who carried out the market investigation of which you have submitted reports?—What happened was that we gave a grant; the Director of Agriculture arranged for a whole-time staff, which included a senior Agricultural Assistant with a knowledge of the tract in which investigations were to be carried out, and junior Agricultural Assistants were allotted to him to carry out the work. The questionnaire was framed by us, the printed books were sent out by us, and the results were worked out in my own office after we received a general report from the Deputy Director in charge of the circle, who had taken a very considerable interest in the investigations in each case.

48,484. An enquiry of this nature is of great help to you in formulating your marketing policy?—Yes, it seems to me to provide the necessary basis of fact.

48,485. Regarding this question of agricultural organisation based on crops, do I understand it to be your view that where trade interests may be mobilised, you would have *ad hoc* committees?—I think that would be a good way of working in the case of the crops I mentioned, jute and sugarcane.

48,486. Can you mention any other crops for which you would have a central organisation where major problems relating to them could be investigated?—In all cases you need research. In the case of staple crops you need assistance in dealing with trade questions as well.

48487. At your institute at Indore major problems of cotton research are being tackled?—Yes.

48,488. And you have various other centres in different parts of India where cotton breeding work is going on?—It is not only cotton breeding work. There are a number of definite research problems being tackled.

48,489. You have, at Indore, a central cotton breeding research station, and you have similar stations in different parts of India. What agencies have you to co-ordinate these activities?—For each scheme to which we give

a grant, we receive a technical report each year which is discussed by our agricultural research sub-committee. The results of the year and the general trend of the work are discussed by a number of agricultural officers.

48,490. Is the man who is doing cotton breeding experiments, say in Lyallpur, in any way in touch with the work being done in Madras?—Yes.

48,491. What agency do you employ to bring these men together?—They come together to attend the meetings of the agricultural research sub-committees, when they discuss each other's reports. They sit down for a whole afternoon and discuss the progress made during the year on the various schemes.

48,492. Do I understand correctly that the work with regard to the research in cotton breeding is chiefly confined to pure line selection?—I will not say it is confined to that. There is a good deal of pure line selection and also a good deal of hybridisation work, but the results that have been obtained have been from pure line selection.

48,493. What prospects do you hold out for hybridisation?—I can only say that there is no example at present of a hybrid cotton being put into cultivation successfully on a large scale. But, in several parts of India, hybridisation work is going on, and some of the hybrids are of considerable promise.

48,494. *Sir James MacKenna*: Is Dharwar American a hybrid?—Dharwar American is an acclimatised exotic. How far it is a mixture of hybrids now, I do not know. In origin, Dharwar American was probably a mixture of Upland Georgian and New Orleans cotton.

48,495. *Professor Gangulee*: I note from your written evidence that the problems of soil and plant nutrition have not received adequate attention from the research institute?—No; I think not.

48,496. That is a line of investigation which could be pursued profitably?—Very profitably.

48,497. You also mention something about the technique of field experiments. That has not been developed at all with reference to cotton?—I would not say it has not been taken up at all. I would say that insufficient attention is being given to it.

48,498. Is there any definite technique of experimental work that you follow in your various trials throughout India?—No. Even if you had a lot of experimental work, different people would have different ideas.

48,499. At the present time, your research organisations under the Committee are confined chiefly to plant breeding work?—No. We give grants for four plant breeding schemes, two mycological schemes, three physiological schemes, and three entomological schemes.

48,500. Are environmental factors, as you put it, receiving attention?—Yes.

48,501. Turning to your précis, you say on page 48: "I do not consider that the various Provinces in the past have taken full advantage of the work of the Pusa Research Institute." Could you explain why?—It is purely a personal view, but I think that one weakness, in some Provinces at any rate, has been that there has been no officer whom I may call an agronomist, whose whole time has been given to field experiments as distinct from plant breeding work. If you are going to have a Central Research Institute working on more or less abstract problems, some one must translate the results into agricultural practice. A certain amount of work of that kind has been done and can be done by Deputy Directors of Agriculture. But as the administrative work increases they have less time for experimental work,

and I do think that there is a necessity for an officer, perhaps in each Province, who will devote his time to purely experimental work of this nature, the translating of the results of theoretical research into practice.

48,502. You also suggest, on page 45, that every possible source of non-official assistance should be thoroughly exploited. Could you tell the Commission how this could be achieved?—I mean that you have, for example, cultivating zamindars. They are very useful people. You have got co-operative societies, you have District Boards. One can get assistance from all these in arranging demonstration work.

48,503. At the present time, such assistance is not forthcoming, at any rate not so much as one would like to see?—Probably not, mainly because the Agricultural Department has not sufficient demonstrating staff. My own view is that once you have made up your mind that you have something to demonstrate, and you have the staff to demonstrate it, you will find any amount of non-official assistance forthcoming. It is not necessary to plan an elaborate organisation, but one has to study each district and plan the work according to the people you have to deal with.

48,504. Do you think that the Departments of Agriculture have made sufficient efforts to interest non-official agencies?—No, because they have not had sufficient staff. So far as their staff permits, I think they have.

48,505. You make a reference to flax. Do you think there is any prospect of flax cultivation in the United Provinces?—Not now.

48,506. Anywhere else in India?—I should doubt it.

48,507. *Mr. Kamat*: Am I right in gathering from your replies to the Chairman and to my colleagues that to copy the plan of the Indian Central Cotton Committee in the matter of staple crops such as rice and *juar* would not be practicable? Is that the net result of your replies?—The net result is that I do not consider that you need an organisation identical with the Indian Central Cotton Committee in the case of crops where there is no particular trade interest.

48,508. In the case of cotton there is a cess. In the case of wheat and other crops you said a cess would not be practicable. Are you in favour of a cess in the case of each of these crops?—A cess on jute, for example, might be justifiable. There you have a parallel case; you have the manufacturing industry, you have large exports, and you have this extreme advantage that it is a monopoly crop.

48,509. *Professor Gangulee*: Jute already carries two cesses?—I should like to see some of the money devoted to agricultural research.

48,510. *Mr. Kamat*: On page 48, you suggest the creation of a definite research fund free from the vagaries of annual Government budgets. So far as the cesses are concerned, you are in favour of a cess on cotton and on jute. Do you think the creation of a definite research fund, if you have no other cesses, is a feasible proposition?—Yes. I think the Central Government might allocate money every year for the promotion of agricultural research, and that the unspent balance should go into a development fund. You want to secure continuity. You want to secure to your research officers a certainty that the money will be forthcoming when it is needed and as it is needed.

48,511. I quite see that. My point is, can you build up a development fund purely from unspent balances, without recourse to additional cesses?—I think that is perhaps a question which ought to be addressed to the Finance Member of the Government of India, and not to me. If Government is willing to set aside an annual allotment, I see no difficulty in building up a fund.

48,512. You suggest on page 48, that some central body is needed to get work started. You go on to say that an advisory council, with the Agri-

cultural Adviser to the Government of India as President, and some whole-time members, would suffice. Would an advisory council, with the Agricultural Adviser to the Government of India as President, be really quite sufficient for this purpose?—Reverting to the same idea as I put forward in regard to the formation of any central committees that are proposed, first of all you should have a careful reconnaissance of the position. I do not know how far the Commission has been able to gather the details that they want. It may be that you have much more information than I suppose. But I think that, in the first place, you will require an advisory council of this kind to plan the work and to decide what has to be done. I am rather in favour of matching your organisation to your problem, and not reversing the process.

48,513. You have made a reference to the federal system of the United States?—Yes.

48,514. You do not suggest that the federal system should be copied here?—No, because I think we have gone too far with organisation of another character to be able to do so now.

48,515. Under that system, there are a large number of bureaux for various crops, and the system is very elaborate, comprising technical advice and a very large staff indeed. Considering the size of this country, I want to be clear if only an advisory council, with the Agricultural Adviser to the Government of India at the top, would meet the needs of the case?—I did not suggest that. The advisory council was only to suggest, to plan. The central organisation is for controlling your central funds. In other parts of my evidence, I have drawn attention to the necessity for research institutes, and I have put forward proposals for the governing bodies of such institutes.

48,516. Apart from the research institute to control the policy, do not you think that a larger and wider organisation than the advisory council which you suggest would be needed?—I have also put forward a proposal for a very much larger and more representative Board of Agriculture, to discuss general policy. Perhaps I misunderstood your question.

48,517. Is that in addition to the advisory council?—Yes.

48,518. You are in favour of the retention of the Board of Agriculture, and you also want an advisory council?—Yes. I think the advisory council might eventually have to be replaced by some other organisation. The Board of Agriculture, I think, should be retained, and I think it should be made more representative.

48,519. Do you think the present Board of Agriculture is a very efficient and satisfactory arrangement? Is it a live body?—Not as much as I should like it to be.

48,520. And yet you are in favour of another Board of Agriculture?—Provided it is more representative. The fault of the present Board of Agriculture is that there are too few non-officials on it.

48,521. You refer to the Indore Institute and draw an analogy, and make certain suggestions based on that analogy. Will you please amplify that a little? At the bottom of page 48, you say, " A similar form of control might be possible for new research institutes financed by the Government of India "?—That is one way in which I suggest we can get over the difficulty that provincial Agricultural Departments are not always in touch with what is going on at the Central Research Institute. I think that if, as in the case of the Indore Research Institute, the governing body of the institute includes representatives of the Provinces concerned, each Province would feel that it had a stake in the place, and I think that much closer touch would be maintained, and any results obtained at such institutes would be brought into agricultural practice quicker than if you had no such arrangement.

48,522. That Institute is a subsidiary body to the Central Committee and it was transferred by the Central Cotton Committee?—The Indore Research Institute is an independent body. We nominate three Governors to it.

48,523. There your control ends?—There our control ends. There are four other Governors. We nominate three out of seven.

48,524. At the bottom of the paragraph you say that the Board of Governors should control the finances and also the policy of the institute? Practically you mean it should be an independent body?—Yes; I think so.

48,525. In other words, your proposal is that the finance should come from the Government of India and the control of policy should be absolutely independent so far as the Board of Governors is concerned?—Yes. The Government of India would probably wish to retain some measure of supervision as they do in the case of the Central Cotton Committee. We have very wide powers, but the Government of India require us to submit certain matters for their sanction. The same is true of the Indore Research Institute and might be true of the new institute I have proposed. If the Government of India provides the money, it is natural that they should wish to exercise some supervision.

48,526. But as the finance of the Government of India is subject to the control of the Assembly, do you not think that the analogy of the Central Cotton Committee or of the Indore Institute would break down?—I think not. If the Assembly agreed to the principle of establishing a research fund by making annual grants to that fund, which would be kept separate from the general revenues and would not lapse, I do not think that any difficulty would arise. I think the Assembly would be sympathetic to a proposal of that kind.

48,527. Giving annual grants?—Yes; to make annual grants to the fund; you would have your permanent funds, the balances of which would not lapse. Then you would have to ensure to the fund some settled income. The annual grant would have to be voted by the Assembly, I take it.

48,528. You think they would waive their right to control annual grants and would be willing to formulate a programme for five years?—That is rather a fine constitutional point. I do not think you would really be asking them to waive any of their rights.

48,529. *Dewan Bahadur Malji*: With reference to the Central Cotton Committee, have you committees of that type constituted for districts?—There are provincial cotton committees and in some Provinces there are divisional cotton committees also. We have divisional cotton committees in Bombay and there are what are called local cotton committees in Madras.

48,530. Do not you think that it would be of great help to have district committees also?—There is no reason why they should not be organised, but I think the initiative should come from the provincial cotton committees in that case.

48,531. Such committees will be of great help to the cultivators in the improvement of soil and plant nutrition, about which you have written so much?—Those are problems which have to be dealt with in research institutes and not by committees.

48,532. At the same time, do you not think that information from districts would be of great use?—I am not opposed to district committees; if any Province finds that district committees would be of use they can create them, but I do not think that it has any bearing on the research problems which you have mentioned.

48,533. Has anything substantial been done so far towards the improvement of soil and plant nutrition by the Central Cotton Committee?—Yes. We have three physiological research schemes going on now.

48,534. As a result of the research have you made any proposals?—No; because we have not finished our research.

48,535. How long will it take?—The oldest of these schemes has been in force for roughly three years.

48,536. How long will it take for you to publish some of the proposals?—Judging by the annual reports, I think, we are now beginning to make progress.

48,537. The results of the research will be published?—They will be.

48,538. You seem to think this would be of great importance to the cultivators and landlords?—Yes; when they are translated into action by the Agricultural Departments they will be of practical importance to agriculturists. There is a further stage to come yet.

48,539. As regards marketing, you have more or less approved of co-operative marketing in your note. I desire to know what help your committee would hold out to these markets when established?—You mean co-operative marketing societies?

48,540. Marketing on co-operative basis or otherwise. Would you hold out any hope to these associations?—If we could do anything in the way of providing them with better information or helping them out of difficulties, we should be only too glad to do so. I presume that you do not mean financial assistance?

48,541. The assistance that will have to be extended to these associations will be of various kinds, for instance, as to the quality of the staff, financing arrangements as to the supply of seeds and so on. Have you any suggestions to make?—We would be very glad to help them in meeting any difficulty.

48,542. You have not published in any journal any such information that you can give?—No.

48,543. Do you propose to publish any?—What we have done so far is, we have decided to publish in special bulletins any results from our research schemes which are of practical, as distinct from scientific, interest. We have already published special bulletins.

48,544. *Sir Chunilal Mehta*: You are acquainted with the research work that is being done in cotton in this Presidency and other Provinces by the existing staff employed by the Local Governments; have you any comments to make on that work?—My committee have the greatest admiration for the work which is being done not only in this Province but in other Provinces also. What we feel is that on cotton and other crops, the departments are doing their best with insufficient money and insufficient men. I cannot say that I am satisfied, because they want more money and more staff.

48,545. If they get more money they will be able to tackle the problems more efficiently?—Staff is even more important than money.

48,546. What I was thinking was whether the existing staff is really good enough to do the work that it is doing or whether you would have a superior personnel?—I do not think there is anything wrong with the officers of the Agricultural Departments.

48,547. *The Chairman*: In the meantime, I take it, statistics are mainly useful to those who wish to know what the cotton supply and prices for that supply are likely to be. Do you think that it would be possible to bring statistics to a point where they might have the effect of influencing the area sown in the following season?—I very much doubt that because in many parts of India the area sown is controlled more by rainfall than

by prices. It is only in the irrigated areas that the area sown is controlled by prices, and then of course it is the relation between the prices of, say, cotton and wheat which is the determining factor. As to the greater part of the rain-sown crop, I very much doubt whether the price is such a big factor in determining the area.

48,548. Not from season to season?—No. Of course, when there is a slump such as there has been this year, it is bound to cause a very big reaction.

(The witness withdrew.)

APPENDIX I.

Representatives of Cotton-Growers on the Indian Central Cotton Committee.

Nominated by the Government of Madras:—

M.R. Ry. R. Appaswamy Naidu Garu, Landholder, Iylaiyarasanendal, *Tinnevelly District.*

M.R. Ry. B.P. Sesha Reddi Garu, Landholder, Betamcherla, *Kurnool District.*

Nominated by the Government of Bombay, Presidency Proper:—

Rao Bahadur Bhimbhai Ranchodji Naik, M.L.C., Landholder, *Surat District.*

Sind:—

Bakhshi Darshan Singh, Zamindar and large-scale cotton-grower, Maluksingh, *Sind.*

Nominated by the Government of the United Provinces:—

Kunwar Bikram Singh, M.L.C. (Zamindar and Honorary Magistrate), Pisawah, *Aligarh.*

Rai Bahadur M.Amba Prasad, M.L.C., *Agra.* (Agra Landholders' representative on the United Provinces Legislative Council.)

Note.—These gentlemen succeeded the Honourable Khan Bahadur Nawab, Sir Mahommed Muzammil Ullah Khan and the Honourable Lala Sukbir Sinha (Landholders and members of the Council of State) whose term of office expired in 1926. They were unable to attend the last meeting of the Indian Central Cotton Committee and I have not met them personally.

Nominated by the Government of the Punjab:—

H. T. Conville, Esq., Convillepur Farm, *Montgomery.* Estate owner and large-scale cotton-grower.

Sardar Ujjal Singh, M.A., Mian Channu, *Multan.* Landholder and large-scale cotton-grower.

Note.—Mr. W. Roberts, British Cotton Growing Association, Khanewal, is also a member of the Committee nominated by the Empire Cotton Growing Corporation.

Nominated by the Government of the Central Provinces:—

Rao Saheb V. G. Kulkarni, Gaigaon Village, *Akola District,* C.P. (Berar). Landholder and cotton-grower.

N. V. Deshmukh, Esq., Malguzar (Landlord) and large cotton-grower, Wadhona, *Wardha District,* C.P.

APPENDIX II.

NOTE ON THE COTTON TRANSPORT ACT IN SURAT BY MR. B. C. BURT.

Surat cotton for many years commanded a considerably higher price than Broach owing to its superior staple. Owing to invasions of short staple *Goghari* the quantity of genuine Surat cotton fell rapidly, and in 1920 the position was so bad that a thousand bales of Surat cotton were rejected when tendered as Broach. It may be explained that under East India Cotton Association rules all Surat is tenderable as Broach, but if tendered as Surat (to be so tenderable it must be of $\frac{7}{8}$ inch staple as against the "fair average staple of the season" for Broach) it is entitled to an "on" allowance. The official "on" allowances for recent years with the price of Broach cotton are shown below:—

—	1921.	1922.	1923.	1924.	1925.	1926.
Broach price (contract).			530	595	447/456	334/336
On allowance for Surat. April/May.	Not fixed.	Not fixed.	115	115	40/45	56/60
On allowance for Surat. July/August.			115	115	45/-	60/70

In 1921 the distribution of seed of the 1027 variety was taken up by the Agricultural Department. The value of the Cotton Transport Act has largely lain in the fact that it enabled the mixed cottons to be steadily pushed out. The effect on prices to growers near Surat can be gauged by the following records of prices paid by one of the largest buyers at Surat in 1924, when the Act had been in force a year. I have added the Bombay prices of Broach futures for the nearest dates:—

—	March 1st.	March 15th.	April 1st.	April 15th.
Broach Futures ...	480	477	470	454
Local Surat ...	524	531	505	519
1027	552	551	527	544

(The comparison is not exact as the freight and charges to Bombay have to be added to the local price, but it illustrates the difference between good local Surat cotton and the improved variety.)

The general effect of the Act is more clearly seen, however, if two special areas in the north of the tract are considered.

1. *Ankleshwar.*—Ankleshwar cotton was ordinarily tenderable as Broach cotton in Bombay, and prior to the introduction of the Cotton Transport Act, Ankleswar cotton was looked on as average Broach cotton. Actually a good deal of the *Goghari* type had crept in. When the Cotton Transport Act was put in force, Ankleshwar was included in one of the Surat zones (the Olpad-Ankleshwar protected area). As the result of this, and of the distribution of 1027 A.L.F. seed, Ankleshwar cotton in 1926 was made tenderable against Surat, the "on" allowance for the year being Rs.56 to Rs.70 per candy (with Broach at Rs.334/336).

2. *Rajpipla.*—This small State is situated just south of the Narbada and just north of the Surat District. Up to 1921 Rajpipla cotton was distinctly

unpopular. In 1921 the distribution of seed of the 1027 variety was started and in 1922 the State forbade the sowing of any other variety, and introduced the Cotton Transport Act in 1923. The following prices for Surat and Rajpipla cottons at Surat show the improvement of prices that has resulted:—

—	Surat. Price per Khandi.	
	Rajpipla cotton.	Surat cotton.
March, 1921 ...	Rs. 300/-	Rs. 346/-
„ 1922 ...	„ 495/-	„ 510/-
February, 1924 ...	„ 731/-	„ 738/-
„ 1925 ...	„ 531/537	„ 540/545

In 1926 a standard for Rajpipla cotton was established in Bombay and the "on" allowances were fixed at Rs.60 and Rs.70 (with Broach at Rs.334) for April-May and July-August tenders respectively, being the same as for Surat.

In short the cotton of the Ankleshwar and Rajpipla areas between 1923 and 1926 has been brought up to the Surat standard, the price in 1926 being approximately 20 per cent. above Broach.

Spot prices in Bombay on March 25th, 1926, were

Broach.	Surat.	Rajpipla.
358	418	418

Dr. HAROLD MANN.

Oral Evidence.

48,549. *The Chairman*: We have a great deal of information about the Department of Agriculture in Bombay and the agricultural education and research in the Presidency, particularly at Poona. Since we examined you last, we have had an opportunity of seeing something of the country that is to be irrigated by the Sukkur Barrage and incidentally of seeing the site of the barrage itself. You were a member of the Committee which sat to consider the special problems arising out of the new irrigation scheme. It will be useful to have from you some idea of the rate at which the recommendations of that Committee, in the matter of research, demonstration and agricultural education, are to be given effect to. First, may I ask you whether the suggestions that that Committee put forward are, broadly speaking, the policy of the department at the moment to cope with the new conditions in Sind?—The proposals put forward by that Committee are the policy of Government in connection with developments in Sind, but they have been very, very much curtailed from what the Committee proposed. The lines of policy have been accepted by Government.

48,549A. I, at any rate, and I daresay some of my colleagues, have been impressed by the difficulties which have faced Agricultural Departments owing to fixed customs, established practices and even vested interests, and I think we have felt that in Sind you have a wonderful opportunity of being ahead of time instead of astern of time; are you satisfied with the proposals as they stand and with the rate at which the various elements in these proposals are to be given effect to?—No, I am not satisfied with the rate of progress at which it is intended to carry them out and which has been already sanctioned. The proposals made in 1924 were, I think, fully justified by the importance of the issue in the next few years; but they did cost a very great deal of money which the Presidency was not prepared to face at the time when the decision had to be made in 1925. I was at that time asked by the Minister what were the more important things and what were the more important lines of development, which should be taken up first. I then laid down those lines of development, and they were accepted *in toto* both by Government and by the Legislative Council. But I presented them as a makeshift and as representing merely the more important parts of what I considered were necessary. In passing those it was stated definitely in the Legislative Council that they must be looked upon as the maximum scheme for which money was then available, and that nothing further in this direction would be considered until and unless the matter had been previously discussed by a predominantly non-official committee from Sind. It has taken all my time since then to get the scheme, as actually sanctioned, on foot. In fact, it is not actually on foot at present, and I am not pressing for any further development at present because I do not think I am ready for it. But when we are ready for it (we shall soon be ready for it), I certainly feel that it ought to be undertaken, at any rate ahead of the time when the water will become available in the Province.

48,550. Will that be in 1931?—Yes; in 1931 water will be available.

48,551. After which, development will take place very quickly?—The engineers estimate that it will take forty years before the project will be absolutely complete, but the big developments will take place in the fourth, fifth, sixth and seventh years after 1931.

48,552. Now, in the meantime, you have a station in Sind called Sakrand; is the proposal to start various sub-stations or to extend that?

—That station at Sakrand was established as representing as nearly as we could, the largest section of the Barrage, namely the Left Bank Rohri Canal area, about which we felt that we knew least. That was looked upon as a central experimental station essentially for scientific work. When results have been obtained, sub-stations would be established both in the north and south, in order to attempt to work out those results in other stations.

48,553. *Professor Gangulee*: So that you have two stations in view; you have one already?—So far as a central experimental station is concerned, we have only this one; but the idea is to have two sub-stations, one in the north and one in the south.

48,554. What about Larkana?—I am now speaking about the Left Bank area. The Committee proposed a similar central station, one for the Right Bank canals in Larkana; it also proposed a third for the Nara Valley, representing Eastern Sind, without specifying any place.

48,555. Conditions vary from one bank to the other?—The conditions vary very much, both under the proposed method of cultivation and under the existing method of cultivation. Sakrand represents the area which is at present very markedly a cotton area. Now, on the Right Bank, there is practically no cotton, and that has to be developed as a rice and *bosi* wheat area. So that the problems facing the Right Bank are entirely a different series of problems from those that face the Sakrand area where we are working at present; not only are they different because the crops grown are different, but at present cultivation on the Left Bank area is essentially based on one cropping in three years, and cultivation on the Right Bank area is based on annual cropping, which means the whole organisation of agriculture is entirely different.

48,556. *Mr. Calvert*: What are the crops?—On the Right Bank it is now rice and *bosi* wheat; on the Left Bank it is one crop in three years, either cotton or grain.

48,557. *The Chairman*: What is *bosi* wheat?—A *bosi* crop is a crop grown with flood water, and not with irrigation water, applied direct to the crop.

48,558. What about the officers required to man these rather substantial extensions when they come along in Sind? Will you be able to find them?—That is a matter of very great difficulty; but so far as the Sakrand centre is concerned we were allowed to have three first-class research officers there, and I think we have got good men. I am one of them; I have spent pretty well half my time there (about five to six months a year) under the present organisation.

48,559. *Professor Gangulee*: The proposal is to have an independent man?—Yes, a whole-time man at Sakrand; that is what Government have agreed to. That is perhaps not quite the way to put it. The Legislative Council insisted that I should take personal responsibility for the actual work at Sakrand; they granted the money only on that understanding. On that, so long as I am here Government have allowed me to take personal responsibility for the work there. When I go, of course, then naturally there will be a separate Director for the Sakrand station for this experimental work, with two first-class research officers.

48,560. *The Chairman*: Independent of the Director at Poona?—It was not originally intended that he should be independent, but it may come to that. I may perhaps tell you what is the present proposal. May I do so? (*Sir Chunilal Mehta*: Yes.) The present proposal is that I am going to retire from the Presidency next October, but Government have asked me to take charge of Sind, as a special charge independent of Poona, for the next

three years, to have my residence at Sakrand and be in charge of the whole work at Sakrand and in Sind. That is the proposal; I have not yet agreed to it.

48,561. *Professor Gangulee*: Who are the scientific workers working at Sakrand?—I have got two men, a Soil Physicist and Agricultural Chemist, and an Agricultural Botanist.

48,562. *The Chairman*: How soon do you expect these developments in the organisation to be completed?—I reckon that within the next 12 months the present scheme will be completely ready; then, I shall be prepared to put forward the next stage in order to complete the organisation which the Committee originally proposed. What Government will do I do not know. I shall put forward within the next 12 months proposals for the carrying on of the next stage.

48,563. Have you been able to procure officers who are Sindhis?—Of the two men, in addition to myself, in first-class positions at Sakrand, one is a Sindhi and the other I have taken from the Presidency.

48,564. As regards your future demonstration staff, will you make an attempt to man that with local men?—Yes; entirely with Sindhis so far as it is possible; as far as demonstration work is concerned, with Sindhi Mussalmans, because the agricultural classes in Sind are almost entirely Mussalman.

48,565. Will they be trained at Poona?—Their training will be at Poona; then I shall take them to Sakrand or some other station in Sind for a year or two for special training; and then they will work in the areas.

48,566. And ultimately you hope, I suppose, to provide facilities for training in Sind itself?—I hope that will be done. The Committee of which I have spoken recommended to Government to have a special agricultural college in Sind. That was turned down as being a matter which they could not face at the present time, but it is being at the present time taken up by others, and there is now a local movement independent of Government to establish an agricultural college in Sind. How far that will come to anything within the next couple of years I do not know, but at any rate there is a very strong local movement in that direction.

48,567. Do you think that there is an active, local demand in Sind in favour of research, demonstration and education?—Yes, I think there is quite an increasing demand. Within the last three years the increase in local support and local enthusiasm towards demonstration and towards improvement has been very remarkable indeed. In the year 1922, as Sir Chunilal Mehta knows, there was a very great deal of local apathy; now, I am astonished to find how extreme is the desire to have further help, and help in directions which, three years ago, people would not have.

48,568. *Professor Gangulee*: Is it due to the presence of the Sukkur Barrage?—No; the cause of it, we imagine, is the alteration in the method of demonstration in Sind; the alteration, which was done at Sir Chunilal's direction, has been marvellously successful.

48,569. *The Chairman*: At the present time the prospect of new irrigation has awakened public opinion all over Sind, has it not?—Yes, indeed; everywhere there is a state of expectation now, extending even among the small cultivators.

48,570. Do you anticipate that the new irrigation and the consequent increase in the population will produce an extension in the amount of land under petty ryotwari cultivators?—I hope it will.

48,571. Have you been consulted from the agricultural point of view on that?—No; not on the question of distribution of land. But my feeling, judging from the existing state of things, is in favour of the encouragement of the small holder if possible.

48,572. Do you think that particular aspect of the problem has an agricultural side to it, as to which you may be expected to be consulted?—I do think so.

48,573. *Professor Gangulee*: Has Government formulated a definite policy with regard to the distribution of land?—They have not published any policy; in fact, I understand that the matter is still under discussion in our Government. I have repeatedly referred to the Revenue Officer in connection with the Barrage, and up to date he has always told me that the matter is still unsettled.

48,574. *Sir Henry Lawrence*: On what point?—On the method of the distribution of land.

48,575. *Professor Gangulee*: You told us a little while ago that you have now two men engaged in scientific research in Sakrand, that you have a Botanist there. What special line of work is he engaged on?—His work is chiefly on three crops, cotton, wheat and *juar*, and in all those three directions there is a very considerable amount of promise.

48,576. With regard to the work of the Soil Physicist, he is concerned, I suppose, with the problems of alkali soil?—I may say that on this matter the Central Cotton Committee have given me a grant of Rs.20,000 a year to be applied at Sakrand as a centre for this particular type of problem; it is intended primarily to be applied to cotton, but incidentally to be applied to everything which is grown on the land. I have not been able to find a suitable Physiologist to undertake physiological work as yet, but I hope to do so before the coming inundation season; I have got the laboratory ready for it.

48,577. *Mr. Kamat*: Supposing the principle of auctioning land were ultimately adopted, do you not think it would be detrimental to the small holder?—I am getting a little bit outside my own subject, but personally I do think so; I think it would very much encourage the speculator, especially if land is auctioned now.

48,578. So you think the land speculator is likely to come in?—I think there is evidence that he is ready to jump at the first chance.

48,579. Have you considered the system in the Punjab of having squares of 27 acres and the system of leasing them out?—The whole of the land under the Sukkur Barrage is going to be squared almost according to the Punjab system, but I do not think that they have decided exactly how they are going to deal with the squares when they are made; but eventually the Punjab system is going to be adopted.

48,580. *Sir Henry Lawrence*: You mentioned that the proposals which have been already sanctioned will be in working order in 12 months from now?—In full working order. All the expenditure which was sanctioned then I shall be able to utilise during the coming 12 months.

48,581. For the following year, 1928-29, when you will put in your proposals to Government?—If all goes well, I propose to put in my proposals about next October, in time to be included in the next year's budget. That would be the next stage. Even then, I do not propose to put the whole of the original committee's scheme, but only a certain stage of it.

48,582. Can you give us any idea what you have in view as to the possibilities of next year?—The next most important stage is the investigation in connection with the Right Bank conditions, the conditions represented by the rice and wheat area on the west bank of the river.

48,583. The Larkana farm has already been in existence for a good many years?—Yes; certainly, before my time; since 1906.

48,584. Do you propose to extend that?—That was the scheme recommended to the Committee, that this farm could be made the basis and extended.

48,585. Is water available there now?—We can get water from the Ghar canal most of the year. Bores have not been a great success there; they have generally given us salt water. But some of the bores there have been a success, and they give us a supply of water which we can use during the time of the year when the canal is not running.

48,586. Would you propose to make any expenditure on tube wells there?—I certainly should. At Sakrand we have been forced to do that in order to supplement the Sakrand *dhand* supply. We have got a tube well down there between 140 and 150 feet deep, and we have got 80 feet of the strainer actually in water.

48,587. Is that giving you water now?—We are not actually using it but by the end of April we shall have to use it to supplement the supply from the Sakrand *dhand*.

48,588. Is there any station besides Larkana and Sakrand that you would propose to start off next year?—Not next year. I think it will take us another two years to get the West Bank into full working order.

48,589. Is that primarily for want of staff?—Not necessarily. I find it takes a great deal of organisation to establish a first-class experimental station, even if you have got the staff.

48,590. Have you got the staff?—I could get it, and that without going out of India. I think I can get men who can do it, partly from other Provinces and partly from men who have been trained in England and who are now available.

48,591. In the open market?—Yes, in the open market.

48,592. All that you require is to get Government sanction to the demands to be made, and you can find the men?—Yes. It might take me a good deal of time. I had a disappointment in connection with the grant from the Central Cotton Committee. I had a Physiologist in view, and at the last moment he dropped out. But I think I can get a man even for this; it will take a few months.

48,593. You think they would be able to start work straight away? You would not require them to go through any course of training before they begin work?—I do not think so. Most of the men are either Cambridge men or men of equal standing. I think they can go straight ahead. For the first years they will want direction, but they have got the technical knowledge. All that they want is a little more experience than they have. As long as I am there, I try to supply it, well or otherwise I do not know.

48,594. At any rate, you are convinced of the necessity of getting through this work with the least possible delay?—I feel so, very strongly indeed.

48,595. You do not anticipate any difficulty from the financial point of view?—That is where I do think there will be difficulty. We shall have to put up a very good case to the Finance Department before they will be prepared to give us more money.

48,596. *Professor Gangulee*: What is your present budget?—For this special development work, it is Rs.1,35,000.

48,597. *Dewan Bahadur Malji*: How much is allotted?—This is the amount actually passed by the Council.

48,598. *Sir Henry Lawrence*: For the Sakrand station?—It is for agricultural development under the Sukkur Barrage. That is to say,

it is money in addition to the ordinary Agricultural Department expenditure in Sind. It is granted on account of the development under the Sukkur Barrage, partly for research, partly for propaganda, in order to prepare the people for the system under the Barrage, and so on.

48,599. With that Rs.1,35,000 you have Sakrand working satisfactorily? You want another equal amount for Larkana?—It will not cost more than another lakh. Of course, there is another point, and that is the question of agricultural education in Sind. What I shall have to ask for will depend on what local support there is. At present there is a move to establish an agricultural college in Sind under private auspices, and if we can get that, there will not remain the necessity to ask Government for so much money.

48,600. According to this report of 18 months ago, the capital expenditure required is about Rs.9½ lakhs and the running expenses about Rs.4 lakhs?—When I said one lakh for Larkana, I was really considering the question of running expenses; I was not thinking of the capital expenses.

48,601. But do you expect to be able to get the capital expenditure from Government in addition to the later other current expenditure?—Yes.

48,602. And that capital expenditure would be in the region of Rs.2 lakhs?—Something like that.

48,603. You mentioned that on the West Bank you did not expect to grow any cotton?—Yes.

48,604. Would you explain why cotton should be barred on the Right Bank, when it is the crop on the Left Bank? Are there climatic reasons? —In part, yes. But I have really taken the scheme of the Sukkur Barrage as developed by the Baker-Lane Committee as being my basis. They have barred this on the West Bank. They have taken the whole of their scheme on the West Bank as based on rice and wheat. I have taken that as the basis.

48,605. Do you agree with it?—It is very difficult to say. It has usually been considered that cotton will not grow successfully on the West Bank.

48,606. Have you tried it?—We have tried it at Shikarpur and Jacobabad successfully. We tried it in Jacobabad last year, and with very considerable success, and I do not see any reason why it should not grow. It is usually considered that the conditions are too hot for cotton, but I do not see any reason why it should be so. Even my own Deputy Director, only last year, did not think it was much use trying cotton up in those regions.

48,607. Cotton has been substituted for rice in certain other districts of the Presidency in the last 20 years?—Very much so.

48,608. There is nothing actually in the soil of rice land that prevents cotton being grown?—Nothing at all.

48,609. You will carry on some experiments to see whether cotton would not also be possible on the Right Bank? That would mean very much less expenditure of water?—Surely it would. The water for rice gives a duty of 50, for cotton it gives a duty of 100. That means to say one cusec (one cubic foot of water per second) will irrigate 100 acres.

48,610. If you could carry it through successfully, it would be a very considerable agricultural improvement?—It would mean that there would be a lot more water for general use.

48,611. Some reference was made to the proposals for small holdings. You know that Mr. Baker, as Revenue Officer, had some scheme for

putting small holders on certain areas in the Barrage?—I know, but I never knew the details of the scheme.

48,612. Do you know whether those proposals are being accepted by Government or at what stage they are now?—I do not know. I would rather you asked the Government.

48,613. At any rate, you know that that point has not been neglected?—I do know that, because Mr. Baker himself told me.

48,614. *Dr. Hyder*: You said you were going to engage, as demonstrators and propagandists, men from the Lower Subordinate Service, men who were Sindhis. The only possible source of supply would be the Agricultural College at Poona?—Yes, for the better class of man.

48615. How many students coming from Sind have you on the roll of the college?—We generally have on the roll of the Agricultural College at Poona somewhere between 12 and 20 such men.

48,616. You think next year you would be able to get 12 to 20 men?—That does not mean 12 to 20 every year. It is a three years' course; we may turn out 6 every year.

48,617. I do not know whether it is a purely agricultural question, but you suggested something about the distribution of land, and you were giving answers to Sir Henry Lawrence about the institution of small holdings. What is the intention of the Government or the people of the Bombay Presidency? Do they want to relieve the congestion in over-populated areas and transfer the surplus population to the districts in Sind, or do they want to do this operation in Sind itself?—I think there are a great many different points of view. One point of view, which I hear constantly in Sind, is that Sind should primarily be for the Sindhis, that is to say, the Sindhis should have the first claim on all available land. There are others who say that it should be purely on a financial basis, that is to say, people who will pay the biggest money, wherever they come from, should get the land. What has been accepted by Government or what is being accepted, I do not know.

48,618. The Government of Bombay could only go by the experience of the Government of the Punjab? That is the only other Government that has had the same problem?—I know that they might go by that experience. The Revenue Officer, Mr. Dow, has been up to the Punjab in order to make special enquiries into the matter.

48,619. I was wondering whether the experiences of settlers taken from one part of the Punjab to another were known to the people of Bombay?—I think to those who are interested in the subject it is well known, especially since the book "The Punjab Peasant in Prosperity and Debt," has been published, which gives a sketch of what happened in the canal colonies in the Punjab.

48,620. *Professor Gangulee*: As you know, irrigation is not an unmixed blessing; do you think there is any great danger of alkali formation resulting from the Sukkur Barrage? What is the condition of the substrata?—I think there is a distinct danger but I think it is a danger that can be met. Mr. Howard, in his Presidential address at the Science Congress in Bombay last year, put one or two points before the public; he insisted that under the Sind conditions, which are either deltaic or semi-deltaic, you would be very liable to have extensive areas of salt development, and also there would be a tendency for the soil to get dead or unaerated. I certainly consider there is some danger of this, and one of the primary objects of the Sakrand undertaking is to try and meet these dangers in advance. We picked out one of the few places in Sind where I can get river water under conditions which correspond with what will be available after the barrage

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is constructed. I am taking the Baker-Lane scheme, which is the scheme on which the whole Barrage developments are based, as the basis of all my investigations. We are applying water in exactly the quantity and by the method which the Baker-Lane scheme lays down, and many variations from that; we are taking exactly what happens under the original scheme and under variations which will occur.

48,621. From the analyses of soils which you must have made, what have you found? Sodium chloride or sodium carbonate?—There is very little sodium carbonate, but the soils in Sind as a whole are very full of sodium chloride and sodium sulphate. I have placed in the hands of the Commission a bulletin prepared by my assistant, Mr. Tamhane, which gives the results of the investigations into the soil. You will find from that that the quantity of salt actually present in the arid lands in Sind is greater than in almost any part of the world that is actually under cultivation.

48,622. In view of the importance of investigation in matters of formation of alkali soil, do you think that the amount of money you have at your disposal is adequate?—I do not; I think we could profitably utilise a very considerably larger amount than we have got at present; there are many lines of investigation which *may not* be important, but which on the other hand, *may* be *very* important, which one has to leave on one side owing to lack of funds.

48,623. You have made a reference to agricultural education; how many students have you now in Poona from Sind?—As a rule we have somewhere between 12 and 20 altogether from Sind.

48,624. You find there is a growing demand for agricultural education in Sind?—If we had a college in Sind I am sure we should have three times that number immediately. After all, it is a long way to go from Sind to Poona, and Poona conditions are not similar to those of Sind. For some years we utilised the Punjab College at Lyallpur, but that was given up after the Reforms, and now we utilise the Poona College.

48,625. *Sir Henry Lawrence*: Why was that given up?—Because the Government of the Punjab insisted that we should pay the whole of the cost which they incurred per student on account of our own students; that the Bombay Government should pay the whole cost of educating those students.

48,626. Why should they not?—We had been accustomed to give a scholarship of so much a month which maintained the student. We gave full welcome as we still do, to students from other parts of India, up to the limit for which we can give space, at the same rate as we do for our own students; but the Punjab Government said: No, we will not admit these students at the same rate as we do our own students, you must pay the whole cost. The Government of Bombay said: No.

48,627. *Dr. Hyder*: When did this happen?—About 1922 or 1923.

48,628. *Sir Chunilal Mehta*: I think they also said there was not room in the College; I think that was one of the reasons. I am only speaking from memory?—I do not remember that being a factor; the other, I am certain, was the main factor.

48,629. *Professor Gangalee*: Where you would locate a college in Sind?—I should locate it in the Indus Valley, if it can possibly be done; any other arrangement I should think would be very much of a makeshift. The Commisioner's Committee recommended Nawabshah, which is about one-third of the distance between Hyderabad and Sukkur; I would like to have it somewhere in the Barrage area.

48,630. *Sir James MacKenna*: It is fairly hot?—Yes, it is hot, but then Sind generally is hot.

48,631. *Mr. Kamat*: In your future scheme on the Sukkur Barrage would you shut out capitalist farming, that is to say, farming by men with capital who would adopt machinery such as tractors, and would have sufficient intelligence and enterprise to adopt improvements?—I would not shut them out, but I would not make them the principal plank in my platform.

(The witness withdrew.)

Mr. V. L. MEHTA, Managing Director, Bombay Provincial Co-operative Bank, Ltd., Bombay.

Replies to the Questionnaire.

QUESTION 2.—AGRICULTURAL EDUCATION (xii).—Very little attention seems to have been devoted, so far, to the possibilities of diffusing education in rural areas by a system of adult schools, the only Province where some considered thought has been bestowed on the subject being the Punjab. Even if primary education is made free and compulsory all over the country in the near future, its influence for good will be felt only in the next generation and, in the meantime, the present generation of agriculturists will be carrying on their toil from year's end to year's end without deriving the slightest possible advantage from modern thought and modern research, the avenues to which a knowledge of letters will gradually unfold before them. The first Chairman of the Board of Directors of this bank, the late Sir Vithaldas D. Thakersey, was one of the few who appreciated the importance and value of the training of the adult and he created an endowment out of which night schools were opened and maintained in about fifty villages with co-operative societies situated in the central and southern divisions of this Presidency. This pioneer attempt has now been abandoned after the demise of its patron, but a resolution was passed at the last Provincial Co-operative Conference proposing the revival of this scheme of adult education and suggesting the starting of adult schools financed partly by co-operative bodies and partly by the State and local authorities and managed, in the main, by local co-operative workers. It should be emphasised, however, that spasmodic attempts by a philanthropist here and there will not carry us very far and what is required is a recognition on the part of the educational authorities of the place of adult education in the national campaign against illiteracy. The Punjab has given a lead which other Provinces may well follow, the Department of Public Instruction making itself responsible for the drawing up of courses of study, the training of teachers and the award of grants-in-aid, and the co-operative organisation undertaking local control, collecting funds locally and securing permanent local interest in the work. It has been suggested that the system of training and the courses of study should be different from those in vogue in schools for the young, but into details of these arrangements our Board do not wish to enter. They would like merely to point out the value of visual instruction in any scheme of adult training.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) (*b*) (*c*) The influence of demonstration and propaganda, in the opinion of the Board, can only spread with the diffusion of education. Another point which strikes them as affecting the success of propagandist measures is the desirability of associating leading agriculturists with the work of propaganda, for these will carry greater influence with the rural population than any outside agency. An attempt in this direction has recently been made in the Bombay Presidency by the starting of bodies known as taluka development associations which are registered under the Co-operative Societies Act and

receive grants-in-aid from Government. Gradually these bodies are establishing themselves in popular favour, and the local demonstrations, agricultural shows and conferences organised by these bodies appear to have created during the last four years wider interest in rural areas in problems of agricultural development than the activities of the Agricultural Department during the first twenty years of its working. An important factor which governs the adoption of expert advice is the lack of means to introduce improvements which, at the outset, appear costly. The margin between income and expenditure is so small that the agriculturist very naturally hesitates to take any risk. The scheme of improvements should be devised with reference to the spending capacity of the agriculturist. If the agriculturist has the wherewithal he will, when convinced, take to the improvement, provided arrangements are made for the supply of the necessary requisites. This is borne out by the Bank's experience with regard to sulphate of ammonia and iron implements.

QUESTION 5.—FINANCE.—(*a*) (*b*) In a Presidency where the peasant proprietor predominates, the most suitable method of financing agricultural operations is through co-operative credit societies. This was the conclusion at which Government and many leaders of public opinion arrived in the beginning of the present century, and experience has only confirmed the soundness of this view. If we examine why agricultural credit has been the subject of special treatment, we find the development of credit in modern times has been on capitalistic lines and the capitalist banking system, with its huge joint stock organisation, has evolved a machinery which, while it accepts the security offered by the joint stock organisations which have developed for trade, commerce and industries, has not recognised the intangible assets of the agriculturist. Hence, in the absence of a joint stock organisation for the finance of agriculture, this premier industry has suffered from a lack of credit in almost every country in the world where modern economic developments proceeded on capitalistic lines, until co-operation has come to its rescue. Agriculture is essentially an enterprise which is dependent on the resources and initiative of an individual and the capitalist banking system has no machinery for the assessment of the earning capacity of the individual, or to accept as security the tangible assets in the shape of land, buildings, stock and crop possessed by him. Unless these special features of the agriculturist's position are realised and arrangements are devised for the provision of adequate and prompt credit facilities, there is a risk of agriculture being impoverished and reduced to a still lower level of economic inefficiency. The solution lies in the evolution of a special machinery for rural credit, based on the collective guarantee of the rural population, promoting thrift, self-help and mutual aid and autonomous in its methods of control. If the present machinery has, in several respects, been found defective, steps should be taken to remove these defects and to educate the rural population in the better use of credit. The primary function of co-operative credit is to provide not cheap and facile credit, but controlled credit. Now the value of any system of credit depends not only on the efficiency of the lenders but also of the borrowers and the peasant is too often an inefficient borrower because he frequently does not understand the economic functions of credit and is unable to measure the profitable use of borrowed capital. With the spread of education will follow a better knowledge of account-keeping, while at the same time no efforts should be spared, by means of supervision and inspection, in educating members of co-operative societies in the principles which govern the assessment of credit. What these principles are have been very clearly defined in the Report of the Committee on Co-operation in India (1915), and in the tracts served by this bank, the Board and the Registrar of Co-operative Societies have insisted on the systematic preparation of statements of normal credits for individual members before consenting to provide any

finance. On the basis of such statements, credits are sanctioned to societies drawable at short notice. The sanction of such credits at the beginning of the agricultural season is very necessary as it inspires confidence among agriculturists that money will be made available as and when required. And the Board have also found that in order to enable this Bank or any other co-operative bank to assure agriculturists of the supply of prompt and adequate finance it is necessary for central banking institutions to be located right in the midst of the people. The Bank has, therefore, adopted the policy of opening branches in all areas served by it direct, and encouraging district banks also to do the same within their own districts. This enables the agency from which finance is derived to keep in close and constant touch with its customers. It has also been found possible, through these branches, to introduce the rural population to the modern methods and machinery of banking and to educate them in the use of cheque currency. All these services are helpful in promoting the organisation of credit in rural areas and thereby facilitate the financing of agricultural operations in a safe and businesslike manner. But the provision of these services involves expenditure and if the Imperial Bank of India is to be remunerated for the opening of its branches in *mofussil* centres of trade and industry, co-operative banks may well claim some similar assistance from Government if they open branches in outlying taluka towns. The least that they ask for is the issue of remittance transfer receipts direct from the provincial headquarters to sub-treasuries and vice versa, and the use, under suitable restrictions of the surplus balances of local sub-treasures by approved co-operative banks and their branches. This will enable co-operative banks to work with the greatest economy and extend and improve their services and also lead to a gradual reduction of the rates of interest at which money is made available by them. Another form of assistance which is required is for the State to grant financial accommodation on cheap terms for the improvement of agriculture and the adoption of protective measures in famine areas, wherever possible through co-operative agency.

For provision of long term credit the present co-operative organization is not quite suitable. Long term credit is generally granted on the security of mortgage of land and the management of land mortgage business is of too responsible and complicated a nature to be undertaken either by ordinary agricultural credit societies or even by Central Banks. As the principles which govern the two types of credit are somewhat different, it is undesirable to mix up the two, and the Board are, therefore, of opinion that the machinery for long term credit should be entirely distinct from the present co-operative credit system and should be modelled on the Farm Loan system of the United States of America. The principal assistance that will be required of Government will be to guarantee the payment of interest on the debenture stock to be issued by the proposed central land mortgage banks in various Provinces, and, if necessary, to contribute to the share capital at the start, withdrawing this contribution gradually as local associations begin subscribing in larger measure. This assistance is absolutely necessary, for in its absence it will be difficult to raise money at low rates of interest and unless cheap land mortgage credit is made available, it will be impossible to tackle the twin questions of debt redemption and land improvement.

The need for *taccavi* loans for ordinary current agricultural operations has practically disappeared with the development of the system of co-operative credit, and it is only in co-operatively backward areas, or in areas liable to frequent famines, that the continuance of the system is necessary. For the grant of loans for land improvement we have, in the Bombay Presidency, devised a system which, with some slight modifications, should yield good results. Under the Land Improvement Loans Act, the Government of Bombay have issued special rules for the grant of loans to co-operative

societies for financing schemes of land improvement undertaken by their members either jointly or individually. A special allotment for this purpose is sanctioned in the annual budget and placed with the Provincial Bank. Applications are received by the bank direct from societies affiliated to it and otherwise through the local Central Banks, and these applications are disposed of in consultation with the Registrar, but there is no special machinery provided for inquiry into these applications, and there are consequently delays in disposal. The work of inspecting sites, preparing plans and estimates, and examining the financial soundness of the proposals should be done either by the local officers of the Agricultural Department or by a staff of special assistants engaged for the purpose, and posted in the districts from which applications for such loans are most numerous. The activities of the special land development department should be extended so as to cover investigation into schemes of land improvement in all parts of the Presidency.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—The old-time rural economy was self-contained, and a village usually produced all it required for the needs of its population. Therefore, while one individual would have a surplus for a time and another a deficit, the general economic level remained unaffected, and resort to external borrowing does not appear to have been very common. With the introduction of modern notions of production, not for use but for sale and profit, a new rural economy came into the field, and gradually the agriculturist tended to resort to borrowing to finance and extend his operations and occasionally to buy food for himself and family and fodder for his cattle. The self-contained unit began to depend on the outside world, first for clothing itself and then for feeding itself, and with the decay of local handicrafts there was a drain of capital. The import of foodstuffs and fodder or of manufactured cloth involved the payment of transport charges on these commodities and the out-of-pocket expenses, if nothing else, of the agencies undertaking the work of distribution. The economy of the village was disturbed rudely, and on the top of it came the famines at the beginning of this century and a consequent deterioration in the condition of the agriculturist. All economic enquiries made in this Presidency tend to show that the margin between income and expenditure is not only very low but is steadily contracting, and this being the position, the agriculturist has to resort to borrowing for all his requirements, whether domestic or pertaining to the pursuit of agriculture. The main causes of borrowing are:—

(*a*) Inability of small holders to make a living in the absence of any subsidiary industry to supplement their income.

(*b*) Increase in the cost of cultivation and labour in the case of money crops, without any corresponding increased income from crops to leave an adequate margin for maintenance.

(*c*) Anxiety of some agriculturists to invest savings from agricultural income, supplemented by outside loans, in the purchase of additional lands.

(*d*) Irregular and deficient rainfall, recurrence of unfavourable seasons and subsidence of water levels in wells.

(*e*) Increase of population and consequent splitting up of holdings without a corresponding increase in production.

(*f*) Gradual decline in the growth of food stuffs and fodder and *bagayat* crops and substitution for them of others generally exported.

(*g*) Non-realization of full market prices for agricultural produce in general, and particularly of the produce exported, owing to the spasmodic rise and fall of prices and owing to the disposal of produce in times of glut to make payment of land revenue and other Government dues.

(*h*) Lack of education and consequent inability to economise in expenditure on domestic ceremonies and litigation.

The main sources of credit are the following:—

(1) *Taccavi* from Government.

(2) Loans from co-operative societies.

(3) Village moneylenders who are themselves cultivators or village tradesmen giving credit for goods supplied.

(4) Moneylenders in towns who combine credit with sale of agricultural produce and supply of agricultural requisites.

(5) Usurious lenders like Pathans.

(6) Dealers who do not pay any cash loans but supply corn to agriculturists for maintenance after their own stock is exhausted, with a stipulation to repay 1¼ times or so at the harvest.

(7) Petty loans from friends and relations.

It is the considered view of the Board that there is little evidence of deliberate recalcitrancy in the Presidency. Recalcitrancy, where found, is the result of the harshness of the methods of recovery employed either against a particular individual or against his class. But the agriculturist with his own operations spread out over a period of a year is leisurely in his attitude towards matters affecting money, and he has been partially encouraged in this attitude by the moneylender who has an eye on the land. Another factor which affects repayments is a change in the old-world economy brought about under modern conditions. Formerly credit was allowed for most purposes, domestic or agricultural, in kind, and there was little scope for misuse. To-day the old credit system is disturbed, and borrowings are made in cash and not in kind. Similarly under the old system repayments were in the shape of produce, and though there was scope for exploitation at the hands of a *sowcar*, the co-relation between credit and production tended to place an automatic check on the use of the credit and thereby facilitated repayment. It will take time for the agriculturist to adjust himself to the new economy, and it will also take some time for the new organization for credit to inspire confidence among the rural population, the lack of which is often a factor affecting repayment. Apart from these general considerations, the main reasons preventing repayment are as under:—

(1) The income from lands has been insufficient to leave an adequate margin for repayments after meeting all charges for family maintenance, owing to the increased cost of cultivation and labour, the slow progress of agricultural improvements and the general deterioration of the soil.

(2) Owing to the increased scarcity of rain many of the wells, specially in the dry tracts, have dried up, and much of the *bagayat* cultivation which afforded a sure means of repayment has been reduced.

(3) General increase in the cost of living due to the after effects of the world War.

(4) Absence of any subsidiary industries to supplement the income of agriculturists during off seasons.

(5) Gradual inclination on the part of the larger holders to depend on servants without the agriculturist himself toiling on the land and without effectively supervising operations which directly and indirectly affects his earning capacity.

The measures necessary for lightening the agriculturist's burden of debt are those which will serve to overcome the disabilities referred to above. Association of the functions of rural credit, supply and sale, revival of secondary occupations, improvement of land, introduction of modern methods of agriculture, better and more widely diffused primary education, social reform, the provision of machinery for the tapping of the temporary savings and surpluses of agriculturists, are all measures which will, in the long run, relieve the burden of debt. But what is immediately required is the

organization of arrangements for the supply of long term credit at low rates of interest and the grant of financial assistance by Government for this purpose. Co-operative land mortgage banks will grant loans both for land improvements and old debt redemption, and to enable the agriculturists to repay the loans from their limited earnings it is of the utmost importance to fix easy instalments and to spread them over a large number of years. For this purpose it will be necessary to issue long term debentures, and in order to inspire confidence among the investing public they should be guaranteed by Government. This will also assure a low rate of interest. They should also themselves, if necessary, purchase these debentures to start with. The valuation of assets would be the chief factor in the advance of loans, which should not generally exceed one-half of the total unencumbered assets. Detailed debt redemption schemes for members of societies to be financed should be formulated for a village as a whole. In view of the immediate liquidation of the whole debt without the trouble of litigation and delay involved, *sowcars* may be induced to compound a portion of the debt, and this compounding may have some relation to the total period of the debt and the interest earned by the *sowcars*. It will be a good arrangement to appoint arbitrators to settle the amount of compounding so that the question may be solved amicably by mutual consent.

The Board attach more value to all these constructive measures than to measures which are restrictive in scope and negative in their purpose.

QUESTION 8.—IRRIGATION.—Satara is one district in the Presidency where the configuration of the land and the physiographical conditions permit a wide extension of the present facilities in respect of irrigation by means of wells, as also through construction of tanks and ponds. Nasik is another. In Sholapur there are immense possibilities for schemes of field embankments intended to conserve the little rain water that is received in the tract. The obstacles to these schemes being undertaken are two-fold, financial and technical. The difficulty with regard to finance is not that money is not available; it is available now without much inconvenience through co-operative agencies, but it is possible that a scheme, otherwise sound and desirable from all points of view, breaks down because finance is allowed at a rate of interest which makes the work unremunerative. In all areas liable to famines and scarcities it should be the duty of the State to provide finance for such approved objects on concessional terms, and even free of interest during the period of construction of the work, if the scheme involves a large outlay. The second difficulty is even greater. No officers of Government are available for technical advice and inquiry, and as, under the present arrangements, it is the funds of Government that are utilized for this purpose, Government naturally require some officer whom they can hold responsible to do the work. Our Board suggest that Government may, therefore, entrust it to local agricultural officers or lend to the District Local Boards or to local branches of the Co-operative Institute the services of trained assistants with whose help these local bodies will be able to give to this very useful activity the little push that is required.

QUESTION 10.—FERTILIZERS.—(*a*) (*c*) (*f*).—Once the value of fertilizers is determined by experts, the one measure which will secure its widespread use by the agricultural population is the co-operative organization of the sale of this commodity. Co-operative supply conveys in itself an assurance, prevents exploitation, and secures publicity such as will facilitate the rapid introduction of the fertilizer. After publicity will come facilities for supply, and, if these are provided, there is every reason to hope for a new and improved fertilizer to achieve popularity. This has been the Bank's experience with regard to the sale of sulphate of ammonia, and, as a result, this fertilizer has achieved wide popularity in the Deccan canal areas in the last

few years. The following are figures for the sale of sulphate of ammonia during the last six years in the group of 100 societies in the Deccan canal areas which are affiliated to this Bank:—

	No. of bags.	*Amount.* Rs.
1921	83	3,115
1922	501	15,693
1923	726	21,149
1924	932	33,102
1925	2,685	61,431
1926	5,365	1,16,886

It may be added that the provision of proper arrangements for keeping fertilizers for sale on consignment account, maintaining and submitting regular statements of accounts of stock and sale and the proper custody of goods, serves to induce importing or manufacturing firms or their agents to keep regular supplies in rural areas as they have done during the last few years at branches of this bank.

QUESTION 14.—IMPLEMENTS.—(*a*) (*b*).—The methods that have been suggested earlier for popularizing fertilizers are also the methods the Board would like to see adopted to secure the introduction of new agricultural implements or machinery. There should be demonstrations held under the auspices of local associations and, following this preliminary propaganda, arrangements should be made to make the implements and spare parts available at the offices of co-operative banks, taluka development associations or unions. At least one implement society in this Presidency has been very successful in its efforts, and sales at some branches of the Bank have also been fairly large, as will be seen from the following figures:—

	No.	*Value.* Rs.
1921	1	200
1922	37	2,352
1923	62	10,603
1924	279	15,762
1925	275	6,501
1926	311	12,129

Facilities should be granted to manufacturers and agents to sell on consignment account and to agriculturists to buy the costlier implements on the hire purchase system.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—The agriculturist, except in double-cropped areas under canal or well irrigation, may be said to have work enough to engage him for about eight months of the year. In the slack season he used to find employment formerly on some subsidiary occupation or another. The present position appears to be that a considerable portion of the people who have nothing to do for four months have to idle away their time or spend it on wasteful pleasures if they can command the means. The old-world economy needed their services locally throughout the year, but a good number of the articles required for local consumption which were formerly manufactured on the spot are now imported. The principal of these commodities is cloth. The plying of carts for hire is one of the few subsidiary occupations that has survived, and even that will die out if motor transport for goods is developed. Dairying is another important subsidiary industry, but it can be resorted to for profit only in areas near towns and cities, or in tracts where there is a good breed of cattle and grazing facilities are available. The same holds good of poultry-keeping, which may again be repugnant to the sentiments of some classes of the agricultural population. There remains, then, the manufacture of cloth for local consumption as well as for profit, comprising all the processes from ginning,

carding and spinning to weaving, bleaching and dyeing. While hand weaving has generally been held to be a specialized occupation, hand-spinning is a craft which all can learn and at which all can ply without difficulty. It seems, therefore, to provide a most suitable secondary occupation in rural areas, and deserves all encouragement by the grant of subsidies for purchase of spinning-wheels or of bonuses or prizes for improvement of yarn and production.

The establishment of the industries connected with the preparation of agricultural products for consumption is to be welcomed, but only in so far as it does not encourage the concentration of industries in large centres of population and the introduction of large-scale industrialism. If cheap electrical power is introduced, mechanical knowledge is more widely diffused among the rural population, and satisfactory arrangements are made for finance, there is no reason why small-scale local co-operative organizations should not be started with fair prospects of success for cotton ginning, rice hulling, sugar making or oil pressing. The facilities that are required are not beyond the means of the State to provide, but before the rural population can take advantage of these it is necessary that there should be a wider diffusion of the knowledge both of elementary business methods and of the rudiments of mechanical engineering. Some studies have been made of the possibilities of developing cottage industries, but the defect is that these are not followed up by any practical action. But if a Home Industries Association is started more local surveys may be ordered and the possibilities of employing electrical power investigated.

As co-operative organizations develop, working agriculturists and members of their families will be inclined to devote more and more of their spare time to these and other public activities, and some will find remunerative employment also in co-operative concerns. The improvement of health conditions can follow in the wake of an improved rural economy and an improved standard of education, but if more money is made available it is not difficult to interest the rural population in schemes for their hygienic betterment.

QUESTION 20.—MARKETING.—(*a*) and (*b*).—Efficient marketing of farm products plays an important part in the improvement of the general economic conditions of the agriculturist as thereby he is enabled to receive his due share of the profits. The existing system of marketing and distribution is not entirely satisfactory inasmuch as, in the ordinary course of business, there are a number of intermediaries between the producer and the consumer who appropriate a large amount of the legitimate share of profit of the producer. The following is usually the link between the producer and the consumer:—

(1) agriculturist, (2) agriculturist's local agent, (3) *mofussil* purchaser's agent, (4) *mofussil* purchaser, (5) retail purchaser, and (6) consumer.

Nos. (2) and (3) usually act as commission agents, though they at times also buy outright and make a margin of profit. For the elimination of some of these intermediaries the co-operative method, again, is effective. If an efficiently-managed sale society takes the place of No. 2 and deals direct with *mofussil* purchasers, intermediary No. 3 can safely be dispensed with, and if there are well-managed consumers' societies at the centre, the sale society can even deal direct with the latter and eliminate both the intermediaries. By this arrangement the consumers' society will derive the benefit of a wholesale rate, as also the attendant advantages of wholesale bargains such as *butta* (i.e., allowance), dryage, etc., and the producer will get through the sale society an increased price owing to the saving of the profits going to other intermediaries.

The absence of uniformity of weights and measures in different centres and tracts has been a great handicap in the successful tackling of the intricate question of marketing and Government may well take immediate

measures in that direction, which will facilitate the working of all concerned in the field of marketing.

In the *gur* (raw sugar) market, the local practices about auctions, rates of commission, dryage, &c., recoveries of dues in the different centres vary considerably. For instance, in some places the produce is sold by open auction while in others business is done by secret understanding between the agriculturist's agent and the purchaser. The quantity to be allowed for dryage also differs at the several centres. The dues on account of goods sold are recoverable daily at some market centres while at some they are not recovered for days, though the *butta* (discount) which is really allowed for cash payment, has to be allowed even for such transactions. The burden of interest upon the agriculturist is thus unnecessarily heavy. In commission shops managed by the Bank and other societies, efforts have been made to introduce uniformity, but even these bodies have to follow the local practices to a certain extent.

(*c*) Much can be done in improving the quality and purity of *gur* (raw sugar) by an active propaganda by the Agricultural Department by introducing refineries and educating the agriculturists in *gur* making. Special training classes may be organised for the purpose, at which the necessity of maintaining the purity of juice, avoiding dust, proper boiling and so on may be explained. As to grading, proper attention in that respect results in a higher price to the cultivator as a large quantity of uniformly graded stock attracts customers and creates keener competition at the auctions. Similarly, the importance of the preparation of handy *gur* lumps of uniform weight, as far as possible, is very great as this too fetches higher prices than those realised for the bigger ones. Again, the mixing up of lumps or uneven sizes during transit results in an amount of breakage which can be avoided by preparing lumps of uniform size. Under the prevailing practice, the lumps are at present wrapped in *kiltan* (gunny cloth) which, being porous, allows dust to get in and spoils the quality of the *gur*. This can be remedied by the use of matting inside the *kiltan*. These remarks are made about *gur* as our Bank has direct experience of this trade, through its shops, but they will apply *mutatis mutandis* to the preparation for market of other kinds of produce.

(*d*) Reports about forecasts of crop conditions both in India and other foreign countries may be published periodically by the several Chambers of Commerce in newspapers and by special bulletins. The market rates of various commodities prevailing from time to time should also be included in such publications. Co-operative magazines, both vernacular and English, should make it a point to publish these details for the benefit of co-operative institutions and their members. They may also, if granted subsidies, publish special news bulletins to be distributed in rural areas. But all these activities will be helpful only when primary education is universalised.

QUESTION 22.—CO-OPERATION.—(*a*) (i) Most of the directions in which the Board would like to see Government encourage the growth of the co-operative movement have been referred to in replies to previous questions. In the forefront of this programme, the Board would place the guaranteeing of the debentures of land mortgage banks, the recognition of these bonds as trustee securities and the subscription of a portion of the share capital in the initial stages. Next in importance comes the grant of subsidies to provincial bodies like the Provincial Co-operative Institute, Bombay, for education and propaganda. It is neither possible nor desirable for the State to undertake this work of propaganda and what we require for this purpose are voluntary organisations liberally assisted by the State. The third requirement is the provision of free audit by Government for primary agricultural societies with unlimited liability until such time as witnesses the introduction of free and compulsory education

throughout the country. That is one of the obligations which, in the opinion of the Board, Government must shoulder for their neglect of primary education. This connotes the engaging of a larger establishment for audit, but, on the other hand, Government can effect a reduction by doing away with such part of the staff as is engaged for the audit of institutions like urban and central banks higher up in the co-operative scale. A charge is made to such banks for their audit and, while this is heavier than what the banks would have to pay to professional auditors, it does not cover the expenditure and there is no reason why these institutions should not be permitted to avail themselves of the service of professional auditors. These institutions should be permitted to select their own auditors from out of an approved panel of auditors certified under the Indian Companies Act. The necessary authority to audit, under the Co-operative Societies Act, will be granted to them by the Registrar on such terms and conditions as he chooses to lay down and the auditors may be left to settle their own terms of remuneration with co-operative banks and societies. After effecting changes in the law, if necessary, arrangements should be made to set up local panels for the decision of disputes by arbitration and for the appointment, where specially required, of full-time liquidators. Government should promote the opening of Central Banks in rural areas by granting them free facilities for transfer of funds and for the temporary use of small portions of surplus balances in sub-treasuries.

(ii) Non-official agencies can themselves do little unless their status is recognised by Government and Government appreciate the role that these play in the furtherance of the co-operative movement. To this end, the Co-operative Department should confine its attention to its statutory functions, judicial and quasi-judicial duties, keeping under its control the work of registration, audit, inquiry, arbitration and liquidation. Other duties and powers may gradually be delegated to self-governing co-operative bodies. This is especially necessary in the determination of the policy of the movement, which function should not be entrusted to a single individual or a department of Government but, within the limitations laid down by the law, should be controlled by co-operative institutions themselves within a Province, expressing their views through their central representative bodies. It is only when this free initiative is left to co-operative organisations that the people's leaders will associate themselves with the movement. Such association cannot but impart life and vigour to the movement.

(*b*) (i) Except to some extent in the Punjab and Bombay and Bengal, no systematic attempt has been made to promote the deposit habit among members of rural societies. The introduction of savings and short term deposits should be specially fostered in all well-managed societies, provided that these societies are in a position to make arrangements, by maintenance of fluid resources with their central banks or otherwise, to repay the deposits promptly when they fall due or the period of short notice expires, and they do not have to incur heavy expenditure on transfer of funds for this purpose. In promoting deposit banking in this manner the opening of branches of Central Banks or small banking unions will prove very serviceable. To stimulate thrift and build up owned capital, as also to awaken a lively interest in working, a system of instalment shares has great possibilities and the Board would suggest the introduction of the system in the canal areas of the Deccan, in tracts like Khandesh, Surat, Broach or Dharwar, as also in villages where the *ryotwari* system of tenure does not obtain. The system of fixing annually the normal credits of individuals should be extended to all parts of the Presidency and a special propaganda undertaken to educate, in its value and importance, inspecting officers as well as office-bearers and members of societies. If local branch banks or banking unions are started all over the Presidency, the system of payment of loans by cheques should be extended as it serves to check a good number

of abuses in the distribution of loans. The following figures indicate the working of the system in two tracts served by the Bank:—

—	No. of societies using cheques.	Cheques used.	Amount paid by cheques.	
			Rs.	
1922	33	337	57,600	Islampur Branch, (Satara District).
1923	71	1,193	1,40,500	
1924	101	2,899	3,31,400	
1925	118	4,089	4,72,200	
1926	102	4,461	6,17,300	
1922	5	20	26,654	Branches in West Khandesh District including (Parola in East Khandesh).
1923	23	225	1,91,451	
1924	35	440	3,29,994	
1925	75	1,425	4,11,842	
1926	122	3,280	5,83,401	

There should be co-ordination in the work of co-operative credit and purchase and sale so that the utilisation of credit can be watched and the recovery of loans from the out-turn of the crops facilitated. If systematic finance is provided on this basis and close and careful supervision is secured through local unions, the Board would strongly urge the removal of the arbitrary limit on advances to individuals which figures at present in the bye-laws of agricultural credit societies.

(ii) and (iii). Wherever possible these two activities, supply and marketing, should be combined and even if credit is to be kept separate between all the three there should be close co-ordination. The following figures give some idea of the purchase and sale business transacted under the auspices of the Bank for the group of 100 societies in the Deccan Canal areas. Figures for the supply of cotton seed in Khandesh are given separately:—

—	Gul (Raw sugar).		Manure.	
	Lumps sold.	Amount.	Oil cake sold in Pallas.	Amount of sale.
		Rs.		Rs.
1921 ...	64,969	3,41,682	16,100	3,07,611
1922 ...	81,110	5,18,467	22,200	3,04,526
1923 ...	96,683	5,80,621	35,000	4,61,279
1924 ...	247,418	10,51,644	41,100	3,58,303
1925 ...	116,289	9,29,894	38,700	5,28,833
1926 ...	320,309	13,99,797	47,800	6,87,911

Supply of Cotton Seed in Khandesh.

—	No. of societies financed by Bank.	No. of societies supplied with cotton seed.	Cotton seed supplied (in lbs.)
1923	104	6	181,060
1924	157	7	211,511
1925	211	64	776,788
1926	287	114	3,606,386

The main points to be noted in the organisation of these activities are:—

A compact area for work;
A large volume of business;
Efficient, full-time, trained staff, properly remunerated;
Absence of conflicting elements and trade interests in committees of management;
Responsible guidance and advice from outside in initial stages;
Proper arrangements for finance through central banks;
Godown accommodation.

To provide the necessary godown accommodation, Government should be pleased to give grants or loans at concessional rates and allot suitable sites on favourable terms. Without proper godown accommodation, produce cannot be stocked and it is difficult to secure godown accommodation from local merchants who are usually the only landlords in small centres. Hence the need for help from Government.

(*c*) Hitherto in India the main achievement of co-operation has been in the sphere of agricultural credit. Although it will be too much to assert that the objects for which co-operative credit societies were started have been attained, there is no doubt that in all centres where co-operative credit has been at work for a fairly long period and under fairly normal conditions, certain tangible advantages have been secured. Prominent among these is the holding forth before the agricultural population of a hope for their economic salvation through organisation and of the possibility of revivifying rural life. Local rates of interest are known to have been reduced as a result of the introduction of this new factor in rural economic life and the moneylenders' exactions diminished if not eliminated. The old system of rural credit which was disrupted as a consequence of the agrarian legislation enacted at the beginning of the century is being re-organised on a new, more stable, and more equitable basis. A considerable amount of capital has been raised by the compulsory savings of members of societies, and in this Presidency and in the Punjab by their voluntary action also. In the sphere of agricultural marketing, it has been found that arbitrary imposts have occasionally been abolished, proper weighments guaranteed, disputes with buyers settled satisfactorily, stocking of goods for better prices facilitated, and, especially in respect of the sale of cotton, the advantages of sale in wholesale markets and of proper prices for improved varieties secured. Co-operative supply agencies have conferred the benefits of proper weighments, purity of goods; and wholesale prices to those who deal with them. What is more important, the movement has awakened agriculturists to a realisation of their rights *vis-a-vis* traders and moneylenders and thus achieved some measure of success in instilling business habits. In areas and in lines of business where the rendering of accounts was unknown two decades ago, the issue of detailed statements of accounts by moneylenders and tradesmen to their customers is now not uncommon.

QUESTION 23.—GENERAL EDUCATION.—(*b*) From the observations the Board have made in their replies to the majority of the foregoing questions it will be clear that they are emphatically of opinion that the one thing above all others that is necessary to pave the way to a progressive rural India is the immediate and universal introduction of free and compulsory primary education. If it is objected that the introduction of primary education is of no value in stimulating interest in agriculture, the reply is that the system of instruction—the courses and subjects of study, the hours of work, the seasonal vacations, the training of teachers—should all be so devised as to satisfy the supreme need of turning out a better generation of agriculturists. With a fair level of literacy prevailing in villages, agriculturists do not

now relapse into illiteracy some time after leaving school, and they will not do so, in the future, with the printed word so keenly demanding their attention as it has now begun to do. One method of retaining interest in agriculture is to impart an agricultural or rather rural bias to the schools. The opening, at selected centres, of institutions of the type of the Danish Folk High Schools—but more modest in their aims—will serve to prevent relapse into illiteracy and tend to stimulate interest in problems of social and economic improvement. For the present generation, there should be a well organised system of adult schools, supplemented by arrangements for visual instruction.

Oral Evidence.

48,632. *The Chairman*: Mr. Mehta, you are Managing Director of the Bombay Provincial Co-operative Bank, Limited?—Yes.

48,633. When was the bank started?—In October, 1911.

48,634. That was early in the history of the co-operative movement in this Presidency, was it not?—Yes, we might say pretty early; we started work in about 1904 or 1905.

48,365. Was that the first bank?—It was the first Central Bank; in fact, when we started we had the whole of the Presidency as our area of activity.

48,636. Since then you have had other Central Banks started?—Yes.

48,637. You yourselves, the Bombay Provincial Bank, are now acting as an apex bank; is that the position?—We are a Provincial Bank in areas where there are Central Banks, but in certain areas there are no Central Banks, and in those areas we deal directly with societies as a Central Bank, through our branches mainly.

48,638. Your debentures are guaranteed and were from the outset guaranteed by Government?—They were; in fact, those arrangements were entered into before the bank came into existence; it was after the Secretary of State approved of those arrangements that the bank was registered.

48,639. How much have you raised on debentures since your beginning?—It is not very much; we got a start of about 5 lakhs or so from the Gaekwar of Baroda and about 1½ lakhs from other sources.

48,640. From the public?—From the general public, and then the War came; it raised the rates of interest all round. To-day the amount of debentures issued is Rs.7,80,000.

48,641. Are you anxious to extend your debentures?—There is a proposal now before the Board that we should extend them; we could not think of it all these years because, during all these years, we should have had to issue them at a very heavy discount.

48,642. You could not have afforded to do that?—No; but now the rates are going down it is just possible we should be able to do it at not a very heavy rate of discount.

48,643. Is there an increasing demand for money from the Central Banks for which you act as the apex bank, or from primary societies in regions where you act as a Central Bank?—There is some demand, but we try to meet that with deposits. These debentures, which are intended to enable us to issue long-term loans, are repayable after a period of about 35 years; latterly there has been a demand for longer term money as well.

48,644. At what rate do you propose to issue these new debentures that you are considering? Have you decided?—We have not decided it,

but it is just possible we might have to do it at something like 10 or 15 per cent. discount.

48,645. Your new debentures?—Yes; they carry interest at 4 per cent.

48,646. Is your share capital guaranteed by Government in any way?—It is not.

48,647. Does Government own any of your share capital?—No.

48,648. Have you borrowed from other banks to any important extent?—I cannot call them permanent arrangements, but we have arrangements with the Imperial Bank of India. We formerly had arrangements with the Tata Industrial Bank as well, but since that went into liquidation we have arrangements only with the Imperial Bank of India; they give us a cash credit to the extent of 8 lakhs.

48,649. Are you lending money direct to cultivators in any cases?—No, we cannot; we only lend to societies; there is a clause in our agreement with the Secretary of State prescribing that we should deal only with registered societies.

48,650. Have you heard of a proposal that banks should lend money direct to the cultivators?—In all parts of India, and in our Presidency as well, we started by combining these two functions, but I think opinion is veering round more and more to the point of view that these two functions should be kept entirely separate.

48,651. Are you familiar with the history of agricultural credit in Egypt?—I know something about it; I cannot say I am very familiar.

48,652. Do you think that the experience of Egypt suggests that it is wise for a bank to place large volumes of cheap money at the disposal of cultivators?—I should think that the example is a warning.

48,653. On page 103, in answer to our Question 2 (xii), you point out that the first Chairman of the Board of Directors of your bank was one of the few who appreciated the importance and value of the training of the adult, and he created an endowment out of which night schools were opened and maintained in about fifty villages, with co-operative societies, situated in the Central and Southern Divisions of the Presidency. You then say: "This pioneer attempt has now been abandoned." How long was that attempt persisted in?—About five years.

48,654. Was it a success on the whole?—On the whole, it was a success.

48,655. Do you speak with intimate knowledge when you say that?—Yes: I have seen some schools.

48,656. Why has this scheme been abandoned?—Because Sir Vithaldas Thackersay passed away in 1922 and his trustees could not continue the arrangement; he was financing all expenditure, except the cost of inspection, which was borne by Government.

48,657. On page 103, in answer to our Question 3 on Demonstration and Propaganda, you are talking about taluka development associations. You say: "Gradually these bodies are establishing themselves in popular favour, and the local demonstrations, agricultural shows and conferences organised by these bodies appear to have created, during the last four years, wider interest in rural areas in problems of agricultural development than the activities of the Agricultural Department during the first twenty years of its working." What is exactly the constitution of these local associations?—They have a mixed constitution; they are composed of individual members as well as of co-operative societies. On the committee of management they take in a few Government officers, it might be the local Mamlatdar; in some cases they take in some local officers of the Agricultural Department or of the Co-operative Department. I do not

think they are members; they are only co-opted on the committee of management. There is a yearly subscribtion from the members, and Government undertake to give grants to the extent of Rs.1,000 on the basis of a rupee to a rupee contributed by the members themselves.

48,658. I suppose the information that these taluka associations are making available to the cultivator is the information provided by the research work of the Agricultural Department?—It is.

48,659. So they are really acting as agents for demonstration?—They are carrying the information given by the Agricultural Department right down to the villages.

48,660. On page 104 of your note, you say that a certain view is borne out by the Bank's experience with regard to sulphate of ammonia and iron implements. Have you had any particular experience in that direction?—Yes; I have given the figures for the last five or six years. I might say that we were one of the first to encourage their introduction.

48,661. Have you been financing cultivators for particular articles of that sort?—No; we are not financing, but the cultivators can get them from us.

48,662. Are you acting as agents?—Yes.

48,663. Are you acting as agents on commission?—Yes, on commission.

48,664. That is working satisfactorily?—That is working very satisfactorily. I might add that in the earlier stages we had to make some advances on the sulphate of ammonia stocked with us; but that is not necessary now.

48,665. *Professor Gangulee*: Do you get your sulphate of ammonia from the British Federation?—No; it is from the Indo-Agri, Ltd.

48,666. Of which Messrs. Shaw Wallace are agents?—Yes.

48,667. *The Chairman*: In answer to Question 5 you point out that it is just as important that the borrower should be efficient as that the lender's organization should be well-developed. Is it your view that the co-operative organization in this Presidency is devoting sufficient attention to the educative side of the movement?—I should think so, on the whole. Of course, we would like to do very much more than we are doing. I can only speak with reference to the areas served by my Bank; I am afraid I cannot speak about other areas. But in the areas served through the Bombay Provincial Co-operative Bank, I should say it is.

48,668. *Sir Chunilal Mehta*: What steps have you taken?—It is not the bank alone that is doing the work, but also the Co-operative Institute, the Co-operative Department, and societies.

48,669. That is in the area served by the Bank?—Yes. I can only speak of the condition in that area; I cannot speak of the conditions in other areas. The kind of inspection, the kind of supervision and the kind of propaganda are such as will train up gradually the members of societies to be efficient co-operators.

48,670. *The Chairman*: Then, on page 105, in answer to our Question 5, you tell us that you are concerned, amongst other things, to educate the rural population up to the use of cheque currency, and on page 109 of your note you give some figures showing the amounts paid by cheques and the number of cheques used. Have you any means of analysing those figures? Can you tell the Commission how many of those cheques were used by individual cultivators?—Those were all in favour of individual cultivators.

48,671. So that these figures do represent a progressive adoption of cheque currency?—They do. I might add that these are figures only for two branches.

48,672. On page 105, in answer to our Question 5, you say, amongst other things, that the least that the co-operative banks are entitled to ask for is the issue of remittance transfer receipts direct from the provincial headquarters to sub-treasuries, and *vice versa*, and the use, under suitable restrictions, of the surplus balances of local sub-treasuries by approved co-operative banks and their branches. You say: "This will enable co-operative banks to work with the greatest economy and extend and improve their services, and will also lead to a gradual reduction of the rates of interest at which money is made available by them." In the first place, when you are talking of co-operative banks do you include primary societies? —I do not refer to the primary societies, because they do not do this kind of business and deal in cheque currency.

48,673. What is the position at the moment exactly in this respect?—This is a general suggestion relating to other Provinces as well as to this Presidency. In this Presidency, the position is that all co-operative banks can remit money from one district treasury to another district treasury or from the provincial headquarters, that is Bombay, to a district treasury; but they are not permitted, except under a special permission, to remit money free of charge to a taluka town. That is one part of it. Do you desire me to develop the other part?—Certainly?—The second suggestion is: "the use, under suitable restrictions, of the surplus balances of local sub-treasuries by approved co-operative banks and their branches." In this connection my Board wish to invite the attention of the Commission to a suggestion made by our late Registrar, Mr. Otto Rothfeld, in a paper read before the Royal Society of Arts in London. He suggested the transfer of the working of certain sub-treasuries to co-operative banks. I understand that he had made that suggestion to Government, but I am not in a position to say what was the outcome of it. Then there is another part which relates to the question which was raised by the Provincial Bank some time ago. The Provincial Bank has 16 branches, all, except one, of which are located at taluka centres. When these taluka branches stand in need of money, what they have got to do is, either to write or wire to Bombay, and the Bombay office here pays money into the Imperial Bank after obtaining special permission from the Deputy Controller of Currency, and on receipt of that money the Imperial Bank arrange to remit that money, either by remittance transfer receipt, or by supply bill, or by telegraphic transfer if the payment is urgent. If it is a supply bill or a telegraphic transfer, the charges are incurred by the Provincial Bank; if it is by remittance transfer receipt, then no charges are to be paid. What we suggested to Government was that if the Government are satisfied about the stability and financial soundness of the Provincial Bank or other co-operative banks, then instead of compelling the local branches to write to Bombay to their head office and the Provincial Bank to pay the money into the Imperial Bank, they should permit the local treasuries to discount or cash drafts drawn by these banks on the apex bank. That will facilitate our work and the development of branches.

48,674. So far, you had no definite reply?—No. There is also a third suggestion, and that is the actual use of the surplus balances of local sub-treasuries. The last suggestion relates to only a temporary use, because the demand draft as soon as it is sent to the Imperial Bank in Bombay and presented by them will be paid by the apex bank. We were wondering whether we should not go further, and ask Government to place at the disposal of approved banks certain of their surplus balances in sub-treasuries, in order to enable us to develop the work of branches by making advances against agricultural produce, and taking the produce in custody. It generally happens in this Presidency that the time when the produce comes into the hands of the cultivators and the time when they have got to sell it coincides with the time when the treasuries have a surplus in hand. If Government

have those surpluses on hand and if, out of those surpluses, some small portions could be placed, as an experimental measure, at the disposal of the co-operative banks it might develop the work of financing the movement of agricultural produce.

48,675. Who would be the agent, under those conditions, whose duty it would be to advise whether the cultivator was a suitable person to whom to make a loan? Would it be the primary society?—It would be the primary society in the first instance, but the body responsible to the Government would be the Central Bank.

48,676. So that you would confine that benefit to members of the primary societies and to no others?—Yes.

48,677. You would not be prepared to go outside the co-operative movement?—No.

48,678. *Sir Chunilal Mehta*: Is this with a view to placing more funds at the disposal of the co-operative movement?—No, but rather with a view to using the surpluses of Government in the treasuries and to enable them to earn a little interest, and to develop this business of financing produce.

48,679. *Mr. Calvert*: You want to use the surplus balances of sub-treasuries when you have, yourself, not got funds from the Central Banks?—No; we might have Government securities, but we would not like to convert those Government securities into cash.

48,680. Where you have got cash in Central Banks you can always use the sub-treasury balances by means of the cash order system?—I do not think we do.

48,681. You can use the cash order system on sub-treasuries if you have cash in your Central Bank to deposit in your headquarter treasury?—What is suggested, however, would be financing for a period of three months.

48,682. Then you will not have enough money in your Central Bank?—Not for special purposes; not for the season; but when there is a glut of produce there is a shortage of money; it would amount to short-dated agricultural produce bills discounted with Government.

48,683. *Sir Chunilal Mehta*: Has such a situation arisen with your bank? Have you ever had the need of supplementing your own operations?—No.

48,684. Or even your seasonal operations?—No; this is only a suggestion intended to meet a new type of business into which we have not gone yet.

48,685. Quite so; but if you had enough money yourself, could you not do this business without assistance?—My own feeling is that if it is really developed on sound lines it would go into very very large figures, and it would be quite impossible for any district bank, or even a Provincial Bank, to meet that without some facilities.

48,686. How much money have you got lying now which you are not able to use?—I am glad to be able to say that the problem of surpluses which confronts other Provincial Banks in India is no longer a very great difficulty with us.

48,687. *The Chairman*: I take it that you have not got a big surplus?—No, just enough for our purposes. It went down to something like 25 or 30 lakhs in October last; of course, this is the time of the year when some money comes in, so that our balances are a little higher just now, but as I say they went down to as low as 25 or 30 lakhs.

48,688. *Sir Chunilal Mehta*: Do you mean that the money that you can call upon is invested in primary societies in your own business?—That is the position which we are reaching now.

48,689. Have you not got your money invested in deposits in other banks?—A very small amount of money is invested in other banks; it went down last year during the agricultural season.

48,690. You have never reached the stage (except during the period of the War) when you were short of money?—We are not short of money, but what I imagine is that if we go in for a new kind of business like this, and if there are surpluses available in Government local treasuries, instead of passing on those surpluses to the Imperial Bank of India, the co-operative movement for the financing of agriculture might be allowed some small share of those surpluses.

48,691. But if you started that business even without drawing on the surplus of the Government at this moment, do you not think that there would be every chance of its being encouraged?—Yes.

48,692. *The Chairman*: You mentioned a moment ago the fact that while, in this Presidency, surpluses are not a problem, they are so in some other parts of India. Have you ever considered the advisability of an All-India Bank which would make surpluses from other places available to you?—Yes, we did consider that question last year at the Provincial Banks Conference, and the general trend of feeling seemed to be that the time had not arrived when this might advantageously be taken up.

48,693. *Sir Chunilal Mehta*: Did you not yourselves lend to other Provinces?—Yes.

48,694. And did you not also receive deposits from other Provinces?—Yes.

48,695. *The Chairman*: So that it has been done already?—Yes, but such co-operation between the apex banks themselves is different from starting a new organisation.

48,696. I see on page 705 that you envisage a separate organisation for the provision to cultivators of long-term credit and you told us in the beginning of your examination that the debentures of your bank had been created in order to provide funds for long-term credit. Is that correct?—Yes, and also to stabilise our finances.

48,697. But, so far as the first object goes, you have not succeeded in meeting any large part of the demand for long-term credit?—I must admit that we have not been able to do so to any considerable extent.

48,698. And is that one reason why you advocate that a central land mortgage bank in each Province might be created in order to supply long-term credit?—Yes.

48,699. And to keep it entirely separate from your provincial co-operative banks?—That is the general idea; the Board are keen about that.

48,700. On page 105 of your note you say that, for the grant of loans for land improvement, you have in the Bombay Presidency devised a system which will, with some slight modifications, yield good results. How long has that system been in vogue?—About five years now.

48,701. Long enough to give you a firm indication that it is well devised?—Yes, I should think so.

48,702. Would you give us the system in a little more detail, as to how *taccavi* loans are issued through your organisations?—It is like this: Every year, in their budget, Government sanction an allotment and that allotment is placed at the disposal of the Registrar of Co-operative Societies. He passes on that money to the Provincial Bank and the funds out of that allotment are to be disbursed by the Registrar jointly with the Board of Directors of the Provincial Bank. Applications are to be received only from societies and not from individuals, and the scheme is meant to finance individual members of the agricultural credit societies who want to go in for schemes of land improvement, either individually or jointly, although the rules say that preference will be given to schemes

of joint improvement generally. Those schemes are put up before the committees of the societies themselves, who consider the schemes thoroughly and then send them on to the Central Bank, where they are examined from the financial point of view, and if there is any technical point on which it is necessary to consult the Agricultural Department, then this is done. The papers then go up to the Assistant Registrar whose recommendation is absolutely necessary. Originally the rules provided for the intervention of the Deputy Director of Agriculture, but they have now been slightly modified, so that from the Assistant Registrar the papers go direct to the Bank, unless, of course, the Assistant Registrar wishes to consult other local officers, such as officers of the Revenue, the Public Works, or the Agricultural Departments. When the papers come to the Bank, the Registrar, Co-operative Societies and the Board of Directors sit together and then decide about the application.

48,703. What is the period of repayment so far as the Provincial Bank is concerned, that is, as between the Provincial Bank and the Government?—The period of repayment is exactly the same, with an allowance of about two or three additional instalments, just as for the advances made direct or through the Central Banks. These are repayable in annual instalments. As the loans are to be treated as loans made by the Provincial Bank to the society or to the Central Bank, the agreement of the Provincial Bank with Government lays down that the maximum period should be 10 years, with power to renew for another 10 years; 20 years is the maximum period.

48,704. So that the primary society is borrowing as it were on the basis of *taccavi* which it is in a position to distribute as long-term loans to individual members; is that how it works?—Yes, with this modification, that it has got to submit a list of individuals for whom the money is required.

48,705. In every case?—Yes.

48,706. And the precise terms of the loan?—With the precise terms of the loan, and the security to be offered.

48,707. In each individual case?—Yes.

48,708. The primary society borrows a block of money on the collective credit of its members, and in every case the application of each individual member has to go up?—It has to go up, but the primary society as an unlimited liability society gives its security.

48,709. So that really there are two securities?—Yes.

48,710. From the point of view of the individual member of the primary society desiring a long-term loan, 20 years is the maximum period?—Yes.

48,711. What is the minimum period?—Five years.

48,712. *Mr. Calvert*: What is the advantage of the society coming to Bombay, when it can go to its own Collector?—The rules prohibit its going to the Collector. The rules lay down that a member of a co-operative society shall not make an application to the Collector, but that he shall make an application to his own society only.

48,713. Who is gaining by this arrangement?—Both the movement and the members.

48,714. Normally, the co-operative society goes to the Collector and borrows money for land improvement?—Yes.

48,715. Why come to Bombay?—Instead of going to the Collector it goes to the Registrar of Co-operative Societies.

48,716. Why not go to the District Collector?—I find that there are two reasons why the arrangement is necessary. First (I have seen it mentioned in evidence in several places, so I hope there is no harm in my mentioning it here), complaints have often been made that it is extremely difficult to get loans through the local revenue officials, and as it is difficult for the individual to approach the local official, he would prefer to deal with his own society, where the persons who determine whether he deserves that loan or not are his co-members.

The Chairman: That applies even in a case where the local society might go to the Collector? That is Mr. Calvert's point, not that the individual would go to the Collector, but that the local society goes to the Collector?

48,717. *Mr. Calvert*: What happens in the case of co-operative societies?—The individual goes to the Collector, not the society; the society does not go to the Collector.

48,718. It can go?—Not under the new rules.

48,719. It could under the old rules?—Personally, I think it is best that we should have a co-operative society for all this finance. At present, if that society goes to the Collector and takes money direct from Government, then that portion of the society's assets would be, in a sense, mortgaged to Government. Here the financing agency remains one. It is a loan by the Provincial Bank to the Central Bank, or from the Central Bank to the society, and we have the co-operative instead of the external authority of the Collector. We have got the co-operative society as a whole financed through the co-operative system.

48,720. *Dewan Bahadur Malji*: Do you think that the credit of the rural society is saved if it does not go to the Collector direct?—Yes. We had instances of excessive borrowing in some districts, people who had already borrowed from the Central Bank also going to the Collector and borrowing without any reference to the central financing agency or to the Registrar.

48,721. *Sir Chunilal Mehta*: Was it not the idea to have a sort of compulsion to joint co-operative societies?—It may have been the case. I might mention that a member of the co-operative society stands on the same footing with regard to the rate of interest as the outsider. He gets money at the same rate of interest at which an individual member of the society would get it.

48,722. *The Chairman*: Would you like to see the granting of *taccavi* loans to individuals resident in areas where there are credit societies, but who are not members of those societies, prohibited?—I would not go so far. I might mention, in reply to the point that was raised that, owing to this arrangement, there is a fairly large amount of interest created (it is an indirect benefit) within our co-operative movement in this work of land improvement, owing to the care, thought and consideration which members of societies and the office bearers have to give to these applications.

48,723. On page 106, in answer to our Question on agricultural indebtedness, has the bank advanced money to any important extent on loan for the relief of debt?—Yes. I have got the figures. In 1922, Rs. 69,847; in 1923, Rs. 57,750; in 1924, Rs. 43,350; in 1925, Rs. 37,170; in 1926, Rs. 1,08,165.

48,724. That does not sound a very large amount?—I shall explain. Since about five years ago, we have had an arrangement under which we do not take up cases of debt redemption of individual members of societies. By individual, I mean that any odd member of a society cannot come along to his society and ask that society to stand security for a long term loan and get that loan from the Central or Provincial Bank. What we require societies now to do is to prepare detailed schemes of debt redemption. They have to get figures of the indebtedness of all members. They have to ask the

members whether they want to be redeemed; then they have also got to determine whether those people will be worth being redeemed. Then they have got to take into consideration their financial position, whether their assets, the amount of their owned capital and other factors, will permit their financing 4, 5, 8, or 10 persons. It is only after that statement is prepared that a selection is made, among those members, of the most credit-worthy people.

48,725. And their cases go up to the Central or Provincial Bank as individual cases?—As cases of persons requiring long term loans through that society. It is the society which borrows from the Central Bank.

48,726. Does the whole list, including those members whose names are not recommended for redemption, go up to the bank?—Yes, as well as to the Registrar.

48,727. As an indication of the position of the society as a whole?—Yes. The idea underlying that is to prevent a few leading members from putting forward their demands and borrowing on the security of the society as a whole.

48,728. In answer to our Question 106, you say: "All economic inquiries made in this Presidency tend to show that the margin between income and expenditure is not only very low but is steadily contracting." That is the margin of agricultural income and expenditure. On what surveys are you basing that statement?—We have Dr. Mann's surveys including "Land and Labour in a Deccan Village." Then we had an inquiry last year in the Pardi taluka of the Surat district.

48,729. *Professor Gangulee*: Was it made by the Bank?—By the Co-operative Institute.

48,730. *The Chairman*: Are you satisfied that those inquiries taken together are really a sufficient authority upon which to found so serious a statement as this?—These are supplemented by the information that we get as parties financing agriculturists in the applications of societies.

48,731. You, no doubt, are fully aware of the fact that such a statement that all over the Presidency the margin between income and expenditure in rural areas is not merely low but is steadily contracting is a very serious one?—It has been so for the last two years. The position was a little different during the years following the War.

48,732. You would not, I presume, base a statement of this sort on the fact that the margin between income and expenditure was contracting for one, two, or three years, a statement which is intended to convey the general trend of change?—What I feel is that this was the position in pre-war times. During war time the position was a little better, but since the period of high prices has passed away we are not sure whether we are not reverting to the old agricultural economy of the pre-war period.

48,733. I suppose, as a Bank, you are concerned to maintain agricultural credit as high as possible in the public eye?—Yes. We would, therefore, take all steps necessary to improve the productive capacity of agriculture.

48,734. You say, on page 106, that the gradual decline in the growth of foodstuffs and fodder and *bagayat* crops and substitution for them of others generally exported is one of the causes of borrowing. That is to say, you refer to the change over from food crops to money crops. Is that the position?—It is so when the prices of money crops go down.

48,735. There has been a change over from food crops to money crops, there has been a fall in prices, and in consequence borrowing has been resorted to; is that the position?—That is so.

48,736. You do not deprecate the change from food crops to money crops in general?—The Board do not.

48,737. *Dr. Hyder*: How do you reconcile your statement in (*b*) with that in (*f*)? In (*b*), you say "Increase in the cost of cultivation and labour in the case of money crops without any corresponding increased income from crops to leave an adequate margin for maintenance." But in (*f*) you say "Gradual decline in the growth of foodstuffs and fodder and *bagayat* crops and substitution for them of others generally exported." If this substitution has been taking place, then your statement is incorrect. Do you find any inconsistency between the two? How do you reconcile (*b*) with (*f*)? You say that there has been a substitution of cash crops or crops generally exported, and then you say that these cash crops or money crops do not pay. If they do not pay, there would be no substitution. How do you reconcile these two statements? In (*b*) you say that they are unprofitable, is not that the point? And then you say in (*f*) that they become profitable?—They do not, because they lead to borrowing. That is my point.

48,738. You say "substitution of others generally exported." These would be cotton and such like crops?—Yes.

48,739. And then you say, cotton does not pay?—Yes.

48,740. Then the two things destroy each other?—I think (*f*) was intended to suggest that the substitution of other crops for food and fodder crops led to borrowing.

48,741. My point is this: if the crops which are exported are not profitable, there cannot then be an extension in the area. But at (*f*) you say that there is an increase, and at (*b*) you say that they are unprofitable?—The extension in area probably followed the period of high prices.

48,742. *The Chairman*: And high profits?—Yes.

48,743. Do you agree with the statement that fluctuations in prices are felt far more by the grower of money crops than by the grower of food crops?—Yes.

48,744. On page 107 you are giving the main sources of credit, and you refer to usurious lenders like Pathans. Do they lend to any considerable extent to cultivators?—To the very small and backward cultivators.

48,745. Is a Pathan a particularly usurious type of lender?—He is.

48,746. In answer to our Question 17, on page 109, you are giving your views about spare time occupations. Have you any experience of any case where an attempt has been made to introduce hand spinning or other such occupation?—It has been done by the All-India Spinners' Association. It is done in Bardoli in Gujarat and in the Panch Mahals.

48,747. Have you personal experience of it?—I have seen some of those areas.

48,748. You are favourably impressed?—Under limitations, yes.

48,749. *Sir Chunilal Mehta*: What are the limitations?—Only as a supplementary occupation if there is nothing else to fall back upon. If we can improve agriculture, and through agriculture the productive capacity of the agriculturist, there is no necessity for it.

48,750. *The Chairman*: On page 113, in answer to our Question 20, you are dealing with the marketing of produce by sale societies. How far do you feel that the co-operative movement in this Presidency is strong enough and sufficiently developed to justify an advance into the field of salesmanship at this stage?—I think we are fairly well advanced.

48,751. You are ready for it?—I should think so. We have already made a good beginning. I do not know whether we might call it a beginning, because we have got fairly strong cotton sale societies both in the Karnatak and in Gujarat, and we have got fairly strong organisations for the sale of jaggery in the canal areas.

48,752. In the field of manufacture, have you started any ginning and pressing societies?—We have got two societies, but unfortunately both these societies have made some mistakes at the outset.

48,753. It is difficult, is it not, to find a manager?—Yes, the technical control is a little more difficult.

48,754. Is it not your experience that the commercial knowledge is much more difficult to find than the technical?—I do not think so; in rural area the experience of our Bank has been that, whenever we have started these sale shops, we have got at least half-a-dozen men who understand the business propositions pretty well.

48,755. I shall be surprised if further experience does not alter your view on that particular point?—Our technical knowledge in India is very defective.

48,756. In answer to Question 22, on page 111 of your note, you are dealing with the matter of audit, and you suggest that what is required is a system of free audit by Government for primary agricultural societies?—We have got it in this Presidency.

48,757. And you suggest that it should be universally so?—Yes.

48,758. How far do you think that the Government is entitled to spend the general taxpayers' money in financing the co-operative movement?—Would it be financing?

48,759. Let us say, spending the general taxpayers' money on this kind of work?—I think it is necessary so long as education is not more widely diffused than it is to-day.

48,760. It is a matter of expediency?—It is necessary.

48,761. It is in the public interest that co-operation should be forwarded?—Yes, and the taxpayers' money may very well be spent on it.

48,762. Have you noticed any criticism on the part of the public about payment by Government for services such as these?—I do not think I have seen it in this Presidency.

48,763. Sometimes in Great Britain it is both loud and long; but then matters are rather different there?—Yes; we have not got it in this Presidency; in fact, the general view in this Presidency is that the audit should continue to be free.

48,764. *Sir Chunilal Mehta*: Why should it only be so until education is made compulsory?—It might be argued that people might then be able to take care of themselves, form their own unions and federations and have their own arrangements for what they call primary audit.

48,765. So that you do not want this State audit as a matter of principle?—Not for all time to come, but for propaganda we do at present.

48,766. *The Chairman*: Do you want Government to go on guaranteeing the interest on your debentures for all time?—That will cease when the total issue of debentures is out.

48,767. So far as the present guarantees are concerned, obviously?—We have got arrangements to go up to 20 lakhs only, and when we have issued all those 20 lakhs we shall have to go to Government again.

48,768. Will you turn to page 113, where you are advocating co-ordination in the work of co-operative credit and purchase and sale; you say: "If systematic finance is provided on this basis and close and careful supervision is secured through local unions, the Board would strongly urge the removal of the arbitrary limit on advances to individuals which figures at present in the bye-laws of agricultural credit societies." Does that mean a change in the law of the Presidency?—It is not a law of the Presi-

dency; it is only the bye-law of those particular societies; the law does not lay down anything.

48,769. Is the co-operative movement, as a whole, of one mind in this matter?—It is; in our conferences we have two or three times passed resolutions on the subject.

48,770. Who would be the authority who would remove this embargo?—It would be for the Registrar to approve of the necessary changes in the bye-laws.

48,771. A little while ago you pointed out how necessary it was to prevent a few permanent members in a society taking advantage of the opportunity to finance their own debt without troubling to help the smaller men?—Yes.

48,772. Do you think that there is a danger that if a control of the sort we are discussing were removed a few leading men might again take advantage of the situation?—No. We have again got that safeguard which we adopt in the other cases; as in the other cases, we insist on the preparation of detailed statements of each individual's position; here, too, we insist on the preparation of a detailed statement for each individual, and that statement would be considered at a society's general meeting.

48,773. You mean a detailed statement of applications?—Yes; a statement, as we call it, of normal credits; that statement gives the applicant's record in regard to previous borrowings and repayments, his holdings of land, the land he rents out or takes on rent, then his income; then he gives an idea of all his requirements. That statement is put before the General Body of Members. Over the General Body of Members there will be the Supervising Union.

48,774. I quite understand that that is a protection for the individual bank, but I do not see how it prevents a few of the members taking advantage of the situation?—The voice of the general meeting is supposed to be the voice which decides these matters. So this matter is not to be decided by the committee members as such, but it goes up to the General Body. My recent experience has been that, when these statements do go up to the General Body, if it is found that certain of the leading members, without being entitled to a large amount of credit, have put against their names large amounts, the other members very loudly object.

48,775. As long as your primary society is thoroughly healthy all is well, but if you have a society in which a few prominent members have taken charge you will have to be very certain that the list sent up represents a fair statement of the case?—Yes, but then there will be the supervising union.

48,776. In your judgment is the supervising union an absolute protection?—It would be; what we have been suggesting is that there should be some limitation of this kind, that not more than one-tenth should be appropriated by one individual.

48,777. So that you do feel the need for some limitation?—Yes.

48,778. I do not think you have mentioned that in your note?—I have not gone into the detail.

48,779. It is a question of degree?—Yes.

48,780. You are anxious to have the limit extended, not to have it removed?—We desire to have it imposed in a different form.

48,781. On page 114, in answer to our Question 25, you say, "with a fair level of literacy prevailing in villages, agriculturists do not relapse into illiteracy some time after leaving school, and they will not do so, in the future, with the printed word so keenly demanding their attention

as it has now begun to do." That is a delightful picture of rural endeavour, everybody reading his evening newspaper, but are you satisfied that the relapse into illiteracy is not going on to this very day?—There are certain parts of the Presidency where we have had schools running for a considerable time and people do not relapse into illiteracy.

48,782. You think that it is a declining tendency?—It is.

48,783. Do you expect a very substantial increase in the membership of co-operative societies and in the business of the co-operative movement within the next ten years in this Presidency?—On the whole, I do.

48,784. Do you think your touch as a movement with the Agricultural Department is sufficiently sympathetic and active?—So far as the Provincial Bank is concerned, I may say that we have been enjoying fairly close touch with the Agricultural Department where we have got branches and where they have got their local offices.

48,785. *Dr. Hyder*: You are the Managing Director of the Bombay Provincial Co-operative Bank, and you told the Chairman just now that you have a debenture issue of only 7½ lakhs?—Yes.

48,786. Out of which 5 lakhs is owned by an eminent person, the Gaekwar of Baroda?—Yes.

48,787. Have you any ordinary share capital also.—We have 10 lakhs of shares.

48,788. Are these shares owned in large holdings by a few individuals?—No. There are 821 individuals and 574 societies and Central Banks as shareholders.

48,789. That is to say, 821 individuals and 574 co-operative societies own the ordinary share capital of 10 lakhs?—Yes.

48,790. What is the proportion owned by these 574 societies?—I have the figures up to 31st March, 1926. The individuals hold Rs.6,81,000 and the societies Rs.2,85,000. Then the total figure was a little under 10 lakhs; to-day, it is 10 lakhs, so it has changed a little. But roughly, out of the 10 lakhs, it is 7 lakhs and 3 lakhs.

48,791. Do you not think it is a very small share, this 2·85 lakhs owned by the societies?—But it is increasing. As a matter of fact, when we started with 7 lakhs, all the 7 lakhs were hold by individuals.

48,792. Your present endeavour is to make it really co-operative?—Yes.

48,793. *Sir Chunilal Mehta*: On page 103, you speak of agricultural education; have you seen the course for the rural bias schools?—I have not seen the course; but I saw the model school which was put up at the Agricultural Show at Poona.

48,794. What do you think of that type of school?—I think it is a most interesting experiment; and I imagine it should be very popular.

48,795. How many are there in the Presidency?—I have no idea.

48,796. I thought all reference to that was omitted in your evidence?—Yes; but we have had to restrict our evidence to a certain number of points.

48,797. What is your view about these schools?—I think those schools ought to be extended.

48,798. On page 104 of your note you say: "The scheme of improvements should be devised with reference to the spending capacity of the agriculturist." Is that not being done now?—There are certain things which it is not in his capacity to take to. I do not mean to suggest that the Agricultural Department carry on a propaganda about such things, but such new things are often placed before agriculturists.

48,799. As a rule, under the development associations, the work is now made more and more to correspond to the ability of the cultivators; is it not?—It is.

48,800. You mentioned in answer to the Chairman that there was danger of a few men in the village taking away the funds which were really meant for the whole society?—It was not my intention to convey that meaning. What I intended to suggest was that these leading individuals might get their debts settled first, and once they take large loans, there might be less money left for redeeming the debts of the other individuals who are less influential, and less money left for the current needs of the agriculturists.

48,801. Is there a general complaint that this is happening in primary societies?—There is no general complaint, but the scheme of normal credit was devised with a view to check any tendency of that type.

48,802. Apart from that scheme, is it a fact that there is a complaint that in societies the poor man does not fully get his due?—It was the complaint when we had not this system of normal credits; now, after it has been introduced, there is no complaint and there ought not to be any complaint.

48,803. You are against that, at any rate?—Yes.

48,804. Do you not agree that it is most important from the point of view of the educative value of co-operation that the poor man ought not to feel that?—It is most important.

48,805. Your experience now shows that within the last two or three years there has been a distinct improvement?—Where the normal credit system has been introduced, and where people are educated in the use of that system, yes.

48,806. I thought this evil was rather rampant?—It might have been so, some years ago, when the societies had to send all applications to the Registrar to get the money from the Provincial Bank or the Central Bank and then distribute the loans.

48,807. On page 105, you are referring to the various facilities that might be given to co-operative banks. Are you following there any example of other countries? Take for instance, the use of surplus balances?—When we made that statement we had not any country specially in view.

48,808. Do you know if these facilities are given elsewhere?—There is some arrangement in France with the Bank of France, but it is a little different from what is suggested here.

48,809. On page 106, you very rightly attach great importance to minor irrigation schemes, and you say that the difficulty is partly financial and, even more, lack of technical advice. As regards the financial difficulty, would you encourage schemes which would not pay their way, in preference to schemes which would?—We could not.

48,810. Supposing there is a certain amount of money to be spent and there is a large number of schemes, some of which will pay their way and some of which will not, what would you do?—We should concentrate on those that will pay their way.

48,811. As regards technical advice, you want a special staff of assistants. To whom are they to be assistants? To the Agricultural Department or to the Bank?—Not to the Bank; we do not wish to have anything to do with those assistants. The money will come out of Government allotments, and Government may keep these assistants either under the Agricultural Department or under the Co-operative Department as they prefer.

48,812. Have they not got them now?—They have no special men for this kind of work. The Co-operative Department has no such officers; they have only auditors and two or three agricultural organisers.

48,813. But the Co-operative Department works hand in hand with the Agricultural Department, and the Agricultural Department has got some officers?—They have got, I believe, overseers, but those officers are not asked to treat this work as a part of their ordinary duties.

48,814. I was not very clear whether you wanted a special staff of assistants for the Bank?—We do not want any for the Bank.

48,815. With regard to agricultural indebtedness, which you deal with on page 106 of your note, had you not, at one time, a scheme to wipe out all the debts of one or two villages?—That is the scheme I referred to. We prepared a detailed statement of each individual's assets and liabilities, his previous records as a borrower, &c., and we were going to take up cases one after another.

48,816. Had you not, in fact, one or two cases where all the debts of one or two villages were to be wiped out?—Not up to that stage; we had taken up individual cases for three years in succession, but I am not sure that all debts in the village were wiped out.

48,817. In 1921-22, you had one or two cases. You wanted to find out what the effect of wiping out the debts of a whole village would be on the subsequent life of the village. I was wondering whether you had any facts relating to such an experiment?—No. Once we prepared that statement, in 1921-22, and it was found that the assets of the society and the borrowing capacity fixed for it would not permit of all the debts of the members being taken up simultaneously; therefore, we prepared a sort of time table.

48,818. Would you like to take up one village like that, supposing money was found to relieve all the members of their debt, and then watch the career of the village? Would it not be an interesting experiment?—Yes; provided that there was an arrangement for purchase and sale, purchase of agricultural and other requisites and sale of agricultural produce. There should be co-operative societies of that type working there.

48,819. Why should you want that?—Because, with regard to their supplies, people might go outside the society and get them on credit.

48,820. But they would get their current needs supplied by the banks; the primary societies would get them the loans required?—They would; but this leads on to the other point which we have emphasised in our note, that we would like to have a co-ordination of all these three functions, because it keeps an automatic check on the borrowings.

48,821. I do not say your scheme is not more comprehensive?—What I wanted to suggest was that if we had an automatic check of that type, then it would be worth while going in for an experiment of the type you have suggested.

48,822. On page 106 of your note, you are talking of the margin between income and expenditure of the cultivator, and you give "(c) Anxiety of some agriculturists to invest savings from agricultural income, supplemented by outside loans, in the purchase of additional lands," as one of the causes of borrowing by the cultivators. Now, how could they have purchased these additional lands if they had no savings?—They had savings in the period of boom.

48,823. Was it only in the period of boom that lands were purchased?—A good lot of land changed hands in those years.

48,824. Did it not happen before the war?—I could not say, because I interested myself in this work only after 1913-14.

48,825. It would be an interesting piece of inquiry to find out whether purchase of land by cultivators took place on a large scale before the war; it would throw rather a different light upon their condition, would it not?—Yes, it would.

48,826. On page 109 of your note, you say that, in 1925, 275 implements were sold and the value was only Rs. 6,501, but in the previous year 279 were sold for Rs. 15,000. The 1925 figure for value seems to be somewhat lower, does it not?—Prices were reduced considerably.

48,827. Was there so much difference?—Yes.

48,828. In 1926 were they put up again?—These are only numbers of implements; there might have been costlier implements sold; I have only taken the total figure.

48,829. You have been able to give assistance to these implement manufacturers, have you not? You finance them?—No, we do not finance them; I do not think we financed the implement manufacturers at all, and, as a matter of fact, we could not do it as they are not registered under the Co-operative Societies Act. But at all branches of the banks they keep their goods for sale on consignment account.

48,830. *Professor Gangulee*: Do your banks get commission on these sales? —There is a certain amount of commission, part of which is kept for expenses and part passed on to the purchasers.

48,831. From whom do you buy this machinery?—Mainly from Kirloskar's

48,832. *Sir Chunilal Mehta*: On page 109, you speak of hand-spinning. Have you any experience of a co-operative society started for hand-spinning and another for hand-weaving?—We have got weavers' societies; I have not seen any spinners' societies, but I understand that one was started in the Ahmadnagar district and it failed.

48,833. And what about the weaving society?—That is still going on.

48,834. That is still flourishing?—Yes.

48,835. Then why do you think that spinning will survive? Do you think that it will stand, speaking economically?—It is just a little addition to the family income.

48,836. How would you dispose of the yarn?—There would have to be some arrangement through some central organisation, an organisation would undoubtedly have to be set up. But even to-day, in Kathiawar, spinners who are agriculturists themselves spin their own cotton and pass it on to the weavers in the same village.

48,837. Do they get mill yarn there?—No, but they do use the local yarn.

48,838. Have you had handloom weavers compare before you the quality of the mill yarn and that of the hand-spun yarn?—I have not had any discussions on this subject, but I know this, that they indent for mill yarn.

48,839. Supposing there were 100 weavers, to 50 of whom you give hand-spun yarn and to the remaining 50 mill yarn, both of average quality. Which do you think would produce the cloth at the greater rate?—For the hand-spun yarn they would have to pay a little more as wages.

48,840. And still get less production?—I do not know about the quantity, but it would certainly cost more.

48,841. Have you considered what would be the effect upon the handloom weaver of making him use hand-spun yarn?—I have not considered the effect, but it is still being done in some places, and, provided he gets his wage, I do not suppose he would mind it.

48,842. You have not really examined the question from the economic point of view?—No; what we suggest is that it should be merely a sort of side occupation in which the people might engage themselves in rural areas and add just a little to their income.

48,843. Would it be possible for the cultivator to take to handloom weaving of a very rough kind? Have you seen it being done?—I am given

to understand that it was not wholly uncommon some years ago, but latterly I have not seen any instances.

48,844. Of course, you know that Mr. Amritlal Thakkar's labours at Dohad, even after two or three years' work, had failed, as nothing much was done with regard to hand-spun yarn; and I believe at Ahmadnagar Mr. Mirikar also tried it and he did not go very far. I am anxious to get at the economics of this, because we are all anxious to find out some kind of subsidiary occupation. I do not say that I am able to suggest anything myself?—The only thing that we wish to suggest here is that if we can increase production by intensive agriculture then by all means let us do so; if that is not possible, then let us go in for some subsidiary occupation. There are subsidiary occupations such, for instance, as dairying and poultry farming, and other things; but the conclusion that we have come to, and it is one at which even the Director of Agriculture in this Presidency has arrived, is that the most suitable subsidiary occupation is the production of cloth right from the bottom to the top, that is, by going through all the processes, and that is exactly what we say here in our note.

48,845. *Professor Gangulee*: How much can a woman or a man earn by spinning?—It does not amount to very much; it would be about Rs.15 a year.

48,846. *Sir Chunilal Mehta*: Referring to the removal of the limit on individual borrowings, why is it not possible to raise the limit? What do you estimate to be the total amount required in this Presidency for the current agricultural needs of one year? You have seen the figures, have you not? They are about 25 crores?—Yes.

48,847. And your co-operative movement is now responsible for about 6 crores?—Yes, about that.

48,848. There is some surplus even now in your bank which remains unutilised?—I would not say that; of course, we could raise more money if we wanted.

48,849. You could get it at quite reasonable rates?—I might mention that we kept on this money and increased our resources, although we reduced our rates of deposits by about half a per cent.

48,850. If your limit were raised, could you not employ more money?—Any amount of money could be absorbed in the financing of agriculture.

48,851. I believe Rs. 300 is the limit per individual?—It differs from area to area, but Rs.300 seems to be the usual rule.

48,852. Suppposing it was raised to Rs.500 or Rs.400, would it endanger the movement?—No.

48,853. Is anything being done to raise the limit?—Some people argue that that would not be sufficient.

48,854. Of course, it would not be sufficient, but in any case it would help to fill up the gap to a certain extent, would it not?—It would, but that, in our opinion, will not solve the problem.

48,855. *Professor Gangulee*: On page 112 you say that non-official agencies can themselves do little unless their status is recognised by Government. Could you amplify that? What have you in mind there?—What we had in mind there was the central representative body, namely, the Provincial Co-operative Institute.

48,856. What recognition do you seek from the Government?—Our Provincial Co-operative Institute in Bombay has been given a certain status and recognition; apart from the subsidies and grants, it has been given a certain recognition under the law. What we suggest is that similar recognition might be accorded, either by law or in practice, to similar organisations in

other Provinces, so that a sort of a general practice may grow up of consulting these organisations in the deliberations on matters of policy, and so on.

48,857. On page 111, you suggest that voluntary organisations should be liberally assisted by the State. What do you actually mean there? What sort of assistance do you seek from the State?—Grants for propaganda, for publicity, for education.

48,858. With reference to your adult education scheme which has been abandoned, was the failure due solely to lack of finance?—Yes, the schools had actually to be closed down for that reason.

48,859. Are you sure that it was not considered a mere luxury, this adult education movement?—I should not say so; at least from my impression of the few schools that I visited, I found that it was appreciated. But I do agree with certain friends from the Punjab, who say that it would have been better to have associated some co-operative idea with it and not put it on a purely philanthropic basis.

48,860. But you had that movement in this Province for five years; it did not catch the imagination of the people, and non-official workers could not be persuaded to take an interest in it after the death of Sir Vithaldas?—Not exactly that; the scheme was based on philanthropy, and, when the outside aid was withdrawn, our societies could not get together the funds necessary; if only there had been an element of self-help or co-operation, then it would have been permanent. That is why we suggest that new experiments should be made on a co-operative basis.

48,861. But five years' support from a philanthropist did not succeed in giving life to the movement?—No, external aid of this type rarely does.

48,862. *Mr. Calvert*: Who prepares the statements of normal credits?—The members communicate their requirements to the Secretary, and the Secretary prepares the normal credit statements under the instructions of the Managing Committee.

48,863. Does the credit represent the members' requirements, or is it credit in the ordinary sense of creditworthiness?—As I explained previously, we have got the member's previous record, his holdings, his earning capacity roughly, and the area he is going to put under a particular crop during the year, and then we would have the details of his requirements. All those requirements are totalled up. We get the total of his requirements for various purposes during the year, also the months in which he is going to require various items of money. Then you deduct from it the recoveries that are likely to come in during that year, add on the balance of the loan which is returnable in the next year, and you arrive at the figure. A certain figure is put down, and then there is a column provided for the credit beyond which the member could not borrow, and that is to be fixed by the society.

48,864. Are these credits and debits approved by the society in general meetings?—Yes.

48,865. Do I understand that your Provincial Bank looks to these statements of normal credits of individuals?—They go to the Assistant Registrar. They are first sent to the local Inspectors of the branches; the local Inspector of the branch forwards the papers with his suggestions to the Assistant Registrar. The Assistant Registrar may make cuts occasionally, and the papers then go to the Registrar. This process is necesary in the case of the Provincial Bank, because no loans can be granted by the Provincial Bank unless approved of previously by the Registrar.

48,866. What happens if a man cannot foresee a year ahead? He cannot foresee the death of his cattle?—They allow them a certain amount for contingencies.

48,867. Which do you favour most, the opening up of branches of your Provincial Bank or starting new local central banks?—If it is possible, in

small areas. I, personally, do not approve of banks working for the whole of a district, but if we can start small banks in local areas, tehsil places, then certainly I would favour banking unions rather than banks of the mixed type. Banking unions are certainly preferable.

48,868. Do you not think that a District Central Bank is preferable to a branch of the Provincial Bank?—It would be so in a sense, but where the Provincial Bank can carry on the same kind of work by opening branches, I, personally, do not think that there is very much to choose between dealing with a certain body of Directors in Poona and dealing with a certain body of Directors in Bombay.

48,869. When you have branches of your Provincial Bank, can you secure, for the working of those branches, control by the local co-operators?—We have got committees associated with all these branches.

48,870. You propose that Government should guarantee the interest on debentures issued by land mortgage banks?—Yes.

48,871. Would you rather that Government guaranteed the interest on the debentures of land mortgage banks, or that they guaranteed the interest on the debentures of the Provincial Bank which you raise in order to lend to land mortgage banks?—The Board's view is that, as a provisional arrangement, Government may continue to guarantee the interest on the debentures of the Provincial Bank. That is only as a provisional arrangement, because the Board contemplates that the requirements for land mortgage credit are so large that it is desirable to have an altogether separate institution. So, until this Commission issues its report or recommendations, and later on a land mortgage bank is started, it might be possible for the Provincial Bank to do this kind of work. But the Directors of the Provincial Bank are of opinion that in a few years' time, if once set going, the business might get beyond the capacity of this Bank to handle.

48,872. If the Government guarantees the interest on debentures of land mortgage banks, is there not the possibility of the Government's guarantee being dispersed over too many units?—We have suggested something like the American system, where there is only one Federal Land Bank. The whole of the United States are divided into 12 units, and for each unit there is one land mortgage bank. Below are the land mortgage associations. What we contemplate is one such bank for the whole of the Presidency and land mortgage associations below it. So that Government guarantees the debentures of the land mortgage bank and not of the associations.

48,873. You are in favour of quite a different organisation, for land mortgage, from the present co-operative societies?—At the higher stages.

48,874. Both the higher and middle stages. You have the apex mortgage bank and the district mortgage bank?—They would be land mortgage associations, but we propose that members of societies should not be financed unless the society gives its consent.

48,875. On page 106, you seem to repeat the view that there was not much debt in the old days, and it is only the modern changes that have led to borrowing?—Yes. That is the general impression. Some years ago, when Government computed the indebtedness of the country, they put it down at about 300 crores, but the recent figure is 600 crores.

48,876. Has not usury existed in India from times immemorial? Did not Manu have to pass special laws restricting usury?—It is hardly a modern thing.

48,877. You said that one of the main causes of borrowing was the immediate payment of Government land revenue. It has been given to us in evidence in different Provinces that the Government land revenue is from 2 per cent. to 6 per cent. of the gross produce. Is that so?—Yes, it would be about that.

48,878. The cultivator need not sell a large part of the produce to pay Government land revenue?—He does sell something.

48,879. Two to six per cent.?—Yes. Probably, when he sells the 6 per cent., he brings all his produce to the market and sells the whole lot. In fact, as most people are aware, there is usually a glut in the local markets at the season when Government land revenue has to be paid.

48,880. If he had to sell from 2 to 6 per cent. of his produce, would you call it the main cause of borrowing?—It would be one of the causes.

48,881. I understand you object to Government paying for the education of the members, but favour Government paying for audit?—Not for the education of members; surely not.

48,882. The Punjab system is that Government pays for the education of the members and the members pay for the audit. Your system is that Government pays for audit and no one pays for education?—Audit is a function which, under the law, rests with Government. The ultimate responsibility rests with Government, and we argue that Government might pay for the whole thing.

48,883. Payment for audit?—The responsibility rests with Government. Government are responsible to the general public; let Government undertake the responsibility for the payment of audit only to the extent of finding money for the Auditors required for primary societies, and not for any other types of institution.

48,884. Would you agree to Government paying for the staff to educate members in the principles of co-operation?—We would, but through a central representative body.

48,885. Where, exactly, do you make a distinction between audit and education?—There is a certain amount of distinction, and that distinction is very well brought out in the report of the Committee on Co-operation.

48,886. It is about 15 years old?—It is, but the principles have not changed.

48,887. What, exactly, is your criticism of the Punjab system?—Audit is, after all, a sort of duty which might at times be unpleasant, and where one has to exercise authority and powers; as the State ultimately is the centre of all authority, we say, let the State keep the audit. Education and propaganda are essential functions where you want very intimate touch with the people and responsibility to the people.

48,888. You are not in favour of de-officialising audit?—I have suggested that so far as the higher institutions are concerned, and when our primary societies are in a position to pay for their audit, and when there is a fairly good level of education, then certainly we would do away with Government subventions for audit as well.

48,889. You say that there is no reason why higher institutions should not be permitted to avail themselves of the services of special auditors. Who prohibits them?—The Registrar prohibits them.

48,890. He will not allow Chartered Accountants to do the audit?—In addition to the audit by Government, you can have as many auditors as you like? He will not accept them in lieu of his own departmental auditors.

48,891. He does not approve of it?—He does not.

48,892. I have not quite understood this cheque system. On what bank are these cheques drawn?—By the society on the local branch of the Provincial Bank. When the committee sanctions a loan to any member, instead of getting cash to the village from the Provincial Bank's office in the taluka town, it will give to that member a cheque to be encashed at the branch of the Provincial Bank, the idea being that the money after being taken to the village and handed over to the individual has again to be got back

into the bazaar, because that is the place where the purchases are to be made.

48,893. The individual will go to the branch of the Central Bank and get cash there?—Yes.

48,894. If he has to repay, to whom does he repay?—He repays to the society. He may repay to the branch of the Provincial Bank or to the branch of the District Bank. He can very well pay to the credit of the society's current account at the local branch bank.

48,895. Why should the individual go to the Central Bank? Why should not he deal with his primary society?—The advantage is, you first avoid the taking of cash from the taluka town into the village, with all the risks that it involves, and all the temptations.

48,896. The cash comes all right?—The cash comes into the hands of the individual, who is his own master. In the other case, the cash comes into the hands of people, either the chairman or the secretary or the office bearers. It avoids a lot of temptation. It also gets over the risk of theft. The result of the introduction of this system has been (I speak for one of the areas which I have mentioned here, namely, the Islampur branch in the Satara district) that cases of misappropriation and so on, which were rampant until about five or six years ago, are not to be seen now.

48,897. When a primary society wants to borrow from a Central Bank, what is the position? It could demand a pro note?—Yes, with a collateral agreement showing the instalments.

48,898. Under the cheque system, the individual just takes a cheque to the bank?—When you get a credit of Rs.10,000 or Rs.15,000, you might not like to draw the whole of it. The growing practice is that, once this credit is sanctioned, the societies draw as little as possible, so as to reduce the interest charges. If they find that the requirements of the members for the next eight or ten days are likely to be Rs.2,000 to Rs.3,000, then they draw from the credit and transfer to the current account the sum of Rs.2,000 to Rs.3,000, and then go on issuing cheques to the individual members. So it gives a pro note to the Provincial Bank or Central Bank for Rs.3,000, and the individual members will give bonds equal to the amounts of the cheques which they get.

48,899. *Mr. Kamat*: You think these adult schools were abandoned for want of finance, after the demise of the patron?—Yes.

48,900. Are you aware that the Education Department also had tried to popularise adult education by starting night schools like these, and their attempt too, apart from this, has failed?—In this Presidency? I am not aware of it.

48,901. There is no question of want of finance there; night schools have not proved attractive?—I do not know about that experiment.

48,902. I am merely suggesting that it may not be only a question of finance; there may be other reasons which you must seek for the failure of these night schools?—Here it was not a question of failure, but an absolute suspension of work.

48,903. You were asked whether it was not true that, even in the ancient days of Manu, indebtedness did not exist. In those days was there not a rule of *damdopat*?—We have heard of it.

48,904. In the present day there is no such limit for mortgages which run continually, with the result that indebtedness has increased almost without limit?—That might be one reason.

48,905. Speaking about co-operation and non-official agencies, on page 112, you suggest that the Co-operative Department should confine its activities to its statutory functions of audit, and that other powers may

gradually be delegated to self-governing co-operative societies. Is it your view that the co-operative movement should be less and less officialised than it is at present?—That is so.

48,906. What are the other duties which you think should be delegated to non-officials; can you illustrate what you mean by one or two instances in this Presidency?—Speaking with regard to this Presidency, and as a broad principle to which I have referred, I should say that no change in policy should be adopted unless the representative organisations of co-operators have been consulted; that is the most important point.

48,907. That is what is at the back of your mind?—Yes.

48,908. There are, for instance, the questions of propaganda, education and audit?—Yes.

48,909. Under this principle, which you have now enunciated, namely, of delegating as much power as possible to self-governing co-operative bodies, you would leave education and propaganda to non-official bodies rather than confine them to the Registrar and his staff?—Yes, that is what I should like to emphasise.

48,910. Would you restrict audit to the officials?—Audit would be carried out by Government.

48,911. You think this system is preferable to that adopted in the Punjab?—I do not know about the Punjab; but it is certainly the most suitable system for us.

48,912. Are you prepared to tell us whether co-operation can be sufficient to check the evil of fragmentation?—I am afraid not; it is because we have not made any special study of that subject that we have not given any replies to this question in the Questionnaire. We feel that we generally agree with the lines on which the evil is attempted to be dealt with in the Punjab; but as we have not studied the exact requirements in our Presidency, especially from the point of view of whether those ideas could be adopted here, we are not prepared to go into the matter.

48,913. With regard to irrigation, in answer to Sir Chunilal Mehta I think you raised two difficulties: first of all, that you have not got sufficient technical advice, and secondly that Government require a high return of interest for the finance of such irrigation schemes?—What I had in view in regard to the finance was the delay; the preliminary inquiries and investigations are so long that people are inclined to lose heart.

48,914. Your grievance is the delay in getting money and not that the Government insist on a very high return. With regard to subsidiary industries, on page 110 you have suggested the starting of a Home Industries Association. Will you amplify that?—A Home Industries Association was started in Bengal some years ago by Lord Carmichael. That Home Industries Association undertook the work of marketing the finished articles sent on by weavers' and other societies. I do not know what the position is to-day, but as a result of those efforts during those years the number of artisans' co-operative societies of various types increased considerably in the Presidency and the movement as a whole received a great impetus.

48,915. Was that an official or semiofficial institution?—It was patronised by the Governor, but I do not think it was official.

48,916. Do you mean it was financed by him or merely patronised?—I am not sure about the details, but it was patronised by the Governor.

48,917. You suggest special training classes for the purpose of teaching *gur* making?—Yes.

48,918. Are not improved methods of *gur* making demonstrated in the present time?—They are demonstrated in some centres, I am aware of that. On the Godavari canal, when canal irrigation was first introduced, the officer in charge of the sugarcane farm in that centre did have classes of that type.

48,919. You want them to be introduced in a larger number of centres? —Yes.

48,920. With the assistance of the Agricultural Department?—Yes.

48,921. *Dewan Bahadur Malji*: Your whole complaint is that remittances are delayed on account of the want of arrangement with the sub-treasury to remit to the Provincial Bank?—Yes.

48,921A. The remittance transfer receipt will go to the sub-treasury, from the sub-treasury to the huzur treasury, and the huzur treasury would issue a cheque on some bank?—It takes from five to seven days in urban areas, and in villages it was calculated some time ago that it takes about fourteen days.

48,922. Occasionally the rural societies, when making such remittances, unnecessarily have to bear the loss of interest owing to the time lost between the sub-treasury and the huzur treasury. I understand that sometimes two or three months elapse?—Of course, those are exceptional cases, but two weeks are not uncommon.

48,923. So if the Accountant General could help us in making arrangements for dealing with the sub-treasuries this difficulty would be overcome?—It would.

48,924. *Mr. Calvert*: It would have to go through the district treasury? —No, they make special arrangements.

48,925. *Dewan Bahadur Malji*: The limit of Rs.300 which is usually fixed in the bye-laws of rural societies is inadequate, is it not?—It is inadequate.

48,926. How much do you think one pair of bullocks would require for their maintenance for a year? Would that average three-quarters of this amount?—I could not say.

48,927. I suppose you would agree that it will cost about Rs.200 at least?—Yes.

48,928. So this limit of about Rs.300 requires revision?—It does.

48,929. Do you consider that the present rate of interest obtaining in the rural areas (it is about 12 per cent.) is in any way tempting?—It may not be tempting in Gujarat, but it is not a high rate for the Deccan; it should be gradually reduced as much as possible.

48,930. In your view, if Government could release some of their funds at cheaper rates of interest this difficulty could be overcome? For example, there are post office deposits and other funds which could be made available for deposits with the Central Banks and then the rate of interest could be lowered?—If the Government would supply the money we could make arrangements; I am not sure if we could ask for this assistance. I do not think the question of the rate of interest determines the development of co-operative credit except in some areas in Gujarat.

48,931. With regard to the land mortgage banks, is it the view of your bank that the money required could be raised on their own debentures in the present state of things? Your debentures carry interest of 4 per cent.?—Yes; it is not possible to float them at par.

48,932. So that land mortgage banks could not possibly be financed by the floating of your debentures?—No, they could not.

48,933. Do you think any appreciable progress is being made in the direction of debt redemption by your bank?—I do not think there is very much to boast about.

48,934. You have told us the people invest in the purchase of land even though they have to borrow to do so. Do you not think that such investments are sometimes improvident?—Sometimes they are improvident.

48,935. With regard to education, I should like to draw your attention to the provision in the new Act for setting off 20 per cent. of the profit? —Yes.

48,936. If schools were started by local bodies and by the Education Department, you think the financial burden could be shared by the co-operative societies?—Only for adult education.

48,937. On page 115 of your note you refer to the Danish Folk High Schools. You are very anxious to run such schools with reference to agriculture?—Yes. What I wanted to suggest was that in order to prevent the population from relapsing into illiteracy, one method would be to start some central schools where there would be general instruction for a short period.

(The witness withdrew.)

Sir LALUBHAI SAMALDAS MEHTA, Kt., C.I.E., Bombay.

Replies to the Questionnaire.

Before replying to the Questionnaire, I would desire to make the following observations of a general character.

There is an impression in the minds of some Western economists and some Government officials that there is hoarded wealth in rural India. That impression gets some support from the reference to the number of sovereigns absorbed in the country during the past few years, and also to a certain extent from some statements made in the Report of the External Capital Committee. Most, if not all, Indian economists and all political thinkers and leaders are convinced that rural India is not only poor but that the larger proportion of it is getting poorer. If the net agricultural income of rural areas is not increasing in proportion to the increase of population, if internal and external prices are going up, and if taxation is increasing, all these must result in increasing poverty. It is for the Commission to find out how far the allegations made by the political leaders, and largely supported by the results of a few detailed inquiries into economic conditions of a few selected villages, are true as regards the majority of agriculturists and their dependents. If they are convinced that these allegations are true, they must try to remedy the existing and, as I believe, the growing evil, because a normally solvent condition of the agriculturists is the foundation on which the edifice of agricultural improvement can be built. If the agriculturists, as a class, do not get two full meals a day, it is impossible to expect them to think of education or of introducing agricultural improvements.

I cannot help saying that neither the Government of India nor any of the Provincial Governments have till now evinced a genuine interest in the economic condition of the people who supply to them the sinews of administration, and that no well-thought out and persistent effort has been made to help the agriculturist to help himself to improve his condition. It is true we have the Pusa Institute and agricultural colleges with agricultural degrees at the Universities and a few agricultural schools, and we have also a few experimental and demonstration farms. We have also the co-operative movement, initiated in 1904, which has been doing good work.

But the combined effect of both the movements is not yet seen to an appreciable extent in the economic condition of the vast mass of the rural population.

Although the terms of reference do not permit of any inquiry into the existing Land Revenue Departments of British India, the Commission will have to compare the economic condition of the agriculturists in the various Provinces, specially in the ryotwari tracts and the zamindari tracts; and if they find that the condition in the former is better than that in the latter, they must, I believe, make recommendations for improving the condition of the latter even by suggesting recourse to legislation if necessary. The tenantry of the Bengal, Bihar and Orissa, and United Provinces *talukdars* and the Central Provinces *malguzars* should receive as much attention as the ryot of Bombay or Madras.

Literacy is restricted to a very small percentage of the rural population. The system of primary education has been the same as that adopted in urban areas. An attempt was made in this Presidency to have two syllabuses, one for the rural and the other for the urban population. After a few years' trial, that experiment was given up. The Punjab seems to be making an effort to provide special courses of instruction for agricultural areas. It is essential that Government should spend money to provide full facilities for such education as is necessary to enable the agriculturists to understand their own financial position and also to follow intelligently the lessons to be drawn from the results of experimental and demonstration farms.

"It is never too late to mend," as the proverb says, and I sincerely wish that the recommendation made by this Commission will receive far more sympathetic treatment at the hands of the various Governments than has very often been meted out to the recommendations of various other Commissions and Committees.

As a Director of the Bombay Provincial Co-operative Bank Ltd., I have had an opportunity of going through the memorandum prepared by the Bank in reply to the Questionnaire issued by the Commission. I am in general agreement with the views expressed therein, and I request the Commission to treat this note as a supplementary memorandum containing my personal views and suggestions, amplifying or in some respects modifying the statement submitted by the Bank and dealing with a few matters not touched upon by it.

QUESTION 2.—AGRICULTURAL EDUCATION.—All opportunities should be given to persons belonging to the agricultural classes to qualify as teachers, but no class distinctions should be made while actually making appointments.

A majority of the young men who go in to-day for agricultural education do so, unfortunately, with a view to qualify themselves for appointments in Government service. Only a small percentage go in with a view to equip themselves as better farmers, but there is a tendency towards an increase in that percentage. The growing pressure of population on the land drives young men to take to education that has a market value and is likely to prove remunerative. Even when persons belonging to the rural classes go in for the study of agriculture, they do so partly, if not mainly, to better their prospects of employment outside their villages. The majority of students do manage to get some salaried employment with Government or with private firms, and only a few settle down on the land.

Although India is an agricultural country, the last fifty years or so have witnessed a gradual urbanization of all thought, and this has had its reaction on the rural mind. As Sir Horace Plunkett rightly observes, "We cannot hope to develop the (agricultural) industry or modernize the business of farming unless a population of at least average quality in things that count in the make up of a modern progressive community can be kept on the land." The first desideratum towards the end is a re-direction of rural education, the next economic organization such as will secure physical well-being and

comfort and ensure steady remunerative employment for all engaged in the industry.

While through the combined efforts of Sir George Anderson and Mr. Calvert the Punjab appears to have laid down the foundation of a sound system of adult education within that Province, Government in this Province failed to appreciate the value and importance of adult education in rural areas and it was left to a non-official co-operator and philanthropist, the late Sir Vithaldas D. Thackersey, to initiate a modest attempt in this direction. Private action and financial backing are all to be welcomed but what we require is a definite recognition of the fact that adult education is not a luxury but a paramount national necessity and as such should be accorded its proper place in the national educational system.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—To support the views put forward in the memorandum of the Provincial Bank, I would like to quote what Mr. George Russell has said. "Co-operation," he observes, "is the keystone of an arch without which technical knowledge offered from the side of the State and enterprise on the part of the country will not succeed in introducing a progressive rural economy in a nation of peasant proprietors." The results of agricultural research have been before the people of India for the last 25 years and a staff of earnest and enthusiastic officers has been entrusted with the task of bringing the results of those researches to the knowledge of the agricultural population. But these officers will be the first to recognize the comparatively small influence which their activities have had upon the daily life of the average agriculturist. The first need is to provide the agriculturist with resources which will enable him to avail himself of these improved methods, the second to make him feel a free man by removing the influence of the *sowcar*-cum-trader, and the third to organize co-operatively the supply of requisites.

QUESTION 4.—ADMINISTRATION.—(*a*) The only measure for co-ordination of activities I would recommend the Government of India to take is to get the officers of Agricultural Departments in various Provinces to come together more frequently than they do at present for exchange of views and comparison of notes, and to insist on methods of red-tape being relaxed so as to enable the successful researches of one Province being freely made available to others. The Board of Agriculture should be popularized and unofficial workers in the field of agriculture associated with it.

QUESTION 5.—FINANCE.—The Co-operative method, based as it is on thrift, mutual aid and self-control, is the most suitable method for the provision of short term credit. It prevents exploitation, organises local resources, promotes training for rural leadership and is capable of extension over the whole country-side. But the two principal drawbacks the system generally suffers from are the inadequacy, in consideration of needs and assets, of the credits provided to several agriculturists and the delays that occur in the disbursement of money. From both these points of views, the opening of Central Banks for small compact areas or the starting of branches of banks covering wider districts is very much to be commended. This type of banking I consider to be of real service to the nation and, where efficient management is assured and repayment guaranteed, I would urge Government to arrange for the deposit of some portion of the surplus balances in sub-treasuries with local control banks or branches of larger banks located in taluka towns. Another form of assistance is the extension of facilities for transfer of funds and I would invite, in this connection, the attention of the Commission to paragraph 215 of the Report of the Royal Commission on Currency and Exchange.

I am inclined to hold that it may take some time before we can build up in our country a complete self-contained organisation for land mortgage credit modelled on the American system. In the meantime I would urge Government to empower provincial co-operative banks in all Provinces to issue long term debentures on the security of mortgage of agricultural land, a policy which has already been accepted in the Presidency and in the Punjab. This should be recognized only as a provisional arrangement. I would further suggest that the rate of interest should be kept at about half per cent. to 1 per cent. over the rate of interest on the borrowings of the Government of India, and that the Reserve Bank of India, if it is started, and the Imperial Bank of India should be permitted to invest funds in this security. Under exceptional circumstances Government may themselves subscribe to some portion of the debentures issued by the provincial banks.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—I would like to note that owing to the deterioration of the condition of cattle, and the high cattle mortality both during famines and epidemics, the stock of plough cattle has to be renewed more frequently than should be the case under a sound system of rural economy, and that expenditure on this head forms one of the main causes of borrowing.

Among measures necessary for lightening the burden of the agriculturists' indebtedness, two stand out very prominent, the reduction of the incidence of interest and the increase of earning capacity. The organisation of land mortgage credit is suggested to enable interest charges to be reduced and to provide finance for schemes of land improvement. But in areas where the physiographical conditions render the recurrence of famines inevitable, the State may well be called upon to assist also in the reduction of the incidence of interest on ordinary loans by providing finance, through co-operative agency where necessary or possible, at concessional terms in respect both of interest and of periods of repayment. Government should also actively assist in the promotion of schemes for revival or introduction of secondary occupations.

Measures to restrict the credit of cultivators by limiting the right of mortgage or sale should, I suggest, be confined to areas where the agriculturist is backward, uneducated and economically unorganised. As education and economic organisation develop, these restrictive measures will be rendered unnecessary and should be abolished.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—I approve of the lines of work inaugurated by Mr. Calvert in the Punjab, although in view of the different conditions prevailing in the Presidency and its varying systems of land tenure, the methods to be adopted here may have to be different. I accept, generally, the draft legislation proposed by the Government of Bombay as well suited to the needs and conditions of this Presidency.

QUESTION 8.—IRRIGATION.—I am of opinion that Government should carry out, in right earnest, the comprehensive policy of developing schemes of minor irrigation works, digging of wells, tanks and ponds, construction of *bandharas* and erection of *bunds* and *tals*, announced by Sir C. V. Mehta at the Bombay Legislative Council in March, 1925. That policy will prove successful in proportion to the local support that is enlisted in the work. While District Local Boards and Village Panchayatas will, as a rule, interest themselves in schemes likely to benefit the whole community in an area, co-operative societies for irrigation may be started where the schemes are likely to benefit groups of individuals. A staff recruited from graduates in agriculture or civil engineering, specially trained for the purpose, must be engaged in all districts of the Presidency where intensive work is possible.

QUESTION 10.—FERTILIZERS and QUESTION 14.—IMPLEMENTS.—To the remarks contained in the memorandum of the Provincial Bank, I should like to add that the most important factor preventing the adoption of improved methods is, to my mind, the economic one. In view of the scanty margin available after providing for subsistence, except in a few favoured tracts, the agriculturist is very naturally inclined to examine critically any improvement that is suggested to him from the standpoints of his capacity to pay for it and of the possible effect of its uses on his income from land. He cannot afford to take any risks. It is, therefore, no use asking him to adopt improved methods which are beyond his capacity. Joint use of machinery is possible, but in all such matters the initiative should come from below, that is, from the people who have to co-operate; it cannot be imposed from outside. It is here that the educative value of co-operative credit lies, for it will gradually train villagers to come together for all forms of co-operative activity for common ends.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—I endorse most of the views expressed in the memorandum of the Provincial Bank. I am not sure if, so far, we have had any satisfactory regional surveys made of the position and prospects of rural crafts and industries. I do not favour the conduct of inquiries which have a purely scientific and antiquarian value, but I would like regional surveys of rural crops and industries to be undertaken through Government departments and bodies like the Co-operative Institute, with a view to examining the possibilities of reviving these or introducing new village or cottage industries and suggesting measures to achieve that end.

QUESTION 19.—FORESTS.—I am inclined to hold that the present methods of forest administration are hardly in consonance with the interests of agriculturists. Restrictions on grazing and restrictions on the use of firewood are so rigidly enforced as to cause resentment among agriculturists. The remedy is to interest the village community in the administration of forests by propaganda and education and to entrust the duty of enforcing restrictions to local panchayats. The education of local opinion will not, I think, take very long, and it is high time to make a good beginning in this direction.

QUESTION 20.—MARKETING.—In the present condition of agricultural trade in most parts of India, the producer who has goods to sell is not able to dictate his price, but has to take such price as is offered to him. That is likely to be remedied only when he goes in for organization, and I agree with a resolution of the Conference on Agricultural Co-operation in the British Empire which suggests that a complete system of co-operative marketing of agricultural produce is essential if producers are to secure a fair return for their produce.

QUESTION 22.—CO-OPERATION.—In suggesting steps which Government should take to encourage the growth of the co-operative movement, I can do so hardly better than to summarise the position, as under, in the words of Sir Horace Plunkett: "They may legitimately demand (from the State) technical instruction; agricultural experiments and research; useful information for adults (by lecture, leaflets and broadcasting); a redirection of general education in rural schools; the extension of credit facilities to co-operative societies and the consequential audit of the accounts; the regulation of transport so as to prevent discrimination (either in freights or facilities) against agricultural consigners; the marketing and branding of graded produce and similar aids to farmers conceded by Continental Governments."

Sir Lavubhai Samaldas Mehta.

There is scope enough here for Government action, and, outside this field of action, non-official agencies should have free scope for effort; they should be permitted to enjoy autonomy and they should be allowed and even encouraged to take the initiative. The functions of education and propaganda should be transferred to central self-governing co-operative bodies started for the purpose, Government contributing towards their expenses, and sympathetically watching their progress. It is with the evolution of this form of autonomy within the co-operative movement that its healthy development is indissolubly interlinked. I have no special suggestions to offer in respect of credit societies beyond those contained in the memorandum of the Provincial Bank, but I should like to emphasize the utility and importance of local unions of societies for supervision and mutual control. To encourage the formation of such unions and to secure their smooth working, Government may call upon the provincial institutes or unions to provide suitable courses of training and may, if necessary, give small grants to the unions in the initial stages to meet the expenses of getting the staff trained and employing qualified persons. The growth of a trained paid staff in this manner, recruited locally, suitably trained, remunerated out of local funds and controlled by local workers, will have a very beneficial influence on the progress of the movement.

QUESTION 23.—GENERAL EDUCATION.—The main reason why children of agriculturists, after once joining school, leave off studies and do not complete their courses is poverty. It is lack of means that compels parents to withdraw their children from school, for the children are wanted to assist in seasonal agricultural operations. But if suitable school terms are prescribed, hours of work changed, courses of study modified and local schools provided, there is no reason why, even under present economic conditions, the education of children should not be more popular than it is to-day.

QUESTION 25.—WELFARE OF RURAL POPULATION.—The prime need is the reconstruction of social life in the country with a view to removing the growing disparity between the attractions of town and country. The starting of social clubs and village institutes and the opening of libraries and gymnasia will provide all the social amenities required. The provision of medical relief through indigenous local *vaids* and *hakims*, or through independent medical graduates subsidised to settle down in rural areas, is another measure I would recommend for adoption. Village panchayats will, after some preliminary propaganda is conducted among them, undertake the work of sanitary and hygienic improvement.

But for all these activities, what is required first is money; and money can only be made available when Government lay it down as a general policy that the proceeds of all taxation levied in rural areas will be utilised in those areas. The second need is workers; workers who will stay and work among the people and assist in the organisation of various social activities as well as on the betterment of material conditions.

I do not consider it advisable for Government themselves to conduct economic surveys in typical villages, but in view of the great importance attached, in the discussion of economic questions, to the evidence offered by statistical data, I would suggest the formation of a Board of Rural Economic Inquiry for the Presidency. This should, as in the Punjab, be financed by Government and public bodies and be composed of representatives of various interests such as the University of Bombay, the Sydenham College of Commerce and Economics, the Agricultural and Co-operative Departments, the Co-operative Institute, the Provincial Bank and the Indian Central Cotton Committee.

Oral Evidence.

48,938. *The Chairman*: Sir Lalubhai Samaldas, would you like to make any statement in addition to your written evidence?—There are two matters which I would like to bring to the notice of the Commission. One is of a general character, and that is about India's representation at the International Agricultural Institute at Rome. I want that India should have her representatives at that Institute. India pays for it about eight units, and India has not got representation, although other smaller countries have representation. I wrote on the subject to the Member of the Government of India in charge of Education and Health, and after consulting Dr. Clouston he said that it would be better if the question were taken up by the Royal Commission. So I want to bring the matter to your notice, as it would be better for India to be in touch with the international movement.

48,939. What is the other point?—I do not know whether the Commission has received a note on an All-India bank by Sir Daniel Hamilton. He saw my article on the "Growth of the co-operative movement in India" in the *Asiatic Quarterly*, and sent me a copy of his note asking me to make use of it.

48,940. Yes; we have a copy of that note.—He has sent me another note, which I think was not sent to the Commission. It is about the question of the ratios (18 pence and 16 pence). I do not know whether the Commission would care to have a look at it.

48,941. I understand that you were closely associated with the beginning of the co-operative movement in the Presidency. Are you satisfied with the trend of things to-day? Do you think the movement is healthy?—I am satisfied. The progress might have been still more rapid, yet I am quite satisfied with the progress we have made till now.

48,942. On the first page of your note, you say: "Most, if not all, Indian economists and all political thinkers and leaders are convinced that rural India is not only poor, but that the larger proportion of it is getting poorer." On what is that statement founded?—On the writings of various economists. There has always been a fight going on in the Imperial and local Councils about the condition of the agriculturists as a class. Since the time of my friend Gopal Krishna Gokhale this question has been before the public eye; it has been discussed by the Congress. My friend Sir Dinsha Wacha has always said that Government did not want to take up this question because he said they were afraid to look at the skeleton in the cupboard. That was Sir Dinsha's phrase, not mine; and I am not in a position to say whether I agree with him or not. That question has been before the general public; I mean by the general public those who take an interest in these questions, and not the masses.

48,943. *Dr. Hyder*: That was Sir Dinsha's view long back; is it his view now?—The Commission can have his views, if they want.

48,944. *Sir Henry Lawrence*: Is the view of increasing poverty a view put forward by Mr. Gokhale?—He said India was getting poorer, but he did not say that he could prove it.

48,945. *The Chairman*: On page 139 of your note, you are talking about agricultural education in answer to Question 2, and you say: "A majority of the young men who go in to-day for agricultural education do so, unfortunately, with a view to qualify themselves for appointments in Government service." So long as there are appointments open in Government service, do you not think that it is very reasonable that the products of agricultural education should receive such posts?—No. I am giving expression to my views which are not shared by members of the Bombay University Senate. I want agricultural education to be taken advantage of by young men who want to stick to agriculture and not to go in for

posts in the Revenue Department or other clerical posts. I do not mind their being appointed Inspectors in the Agricultural Department; that would be a legitimate aim. But the other thing is not legitimate. There is even a proposal that the B.Ag's should be allowed to appear for LL.B. examination. In my view that should not be encouraged.

48,946. Do you think it is possible to train young men as officers in the Agricultural Department at the same institution at which the sons of zamindars and other large landed proprietors might be trained as efficient managers of landed estates so that they may go back to the land?—I would not hazard any opinion on that.

48,947. At page 140, in answer to Question 3 on Demonstration and Propaganda, you say: "The first need is to provide the agriculturist with resources which will enable him to avail himself of these improved methods, the second to make him feel a free man by removing the influence of the *sowcar-cum*-trader, and the third to organize co-operatively the supply of requisites." That, I suppose, is really a short statement of the objects of the co-operative movement?—I should think so. There are difficulties in the way at present. The Provincial Banks, the District Banks and the co-operative societies want to restrict their work to the provision of funds for agricultural needs only; for household needs sufficient funds are not provided, and, as a result, members of a society have to be beholden not only to their own society, but also to the *sowcar* off and on, and the *sowcar* does not fail to take advantage of it. If the co-operative movement is to succeed in the fullest sense, it must take risks and take the place of the *sowcar*.

48,948. On page 140, in answer to our Question 5 on Finance, you say: "Another form of assistance is the extension of facilities for transfer of funds and I would invite, in this connection, the attention of the Commission to paragraph 215 of the Report of the Royal Commission on Currency and Exchange." I do not know whether you wish to develop it?—I should like to, if you will allow me. I will go a little further than what the Commission has said, and refer to the proposals made in the Reserve Bank Bill, under which it is proposed that the Reserve Bank should give certain funds to the Imperial Bank where it opens new branches. Now, what I want Government to do is to legislate that the Reserve Bank should give the same facilities as are proposed to be given to the Imperial Bank, to the Provincial Co-operative Bank, wherever they are satisfied that the Co-operative Bank is progressing satisfactorily and doing work on purely banking lines. The Imperial Bank will not and cannot open branches in our taluka headquarters. The needs of the agriculturists can only be met by banks located at taluka headquarters, and the facilities proposed will enable the Provincial Co-operative Bank to open branches in those places. Either Government must take the risk themselves and finance the cultivators, or, what is more reasonable, give facilities for the Provincial Bank to open branches. Sir Chunilal Mehta will be able to correct me if I am wrong, but I think at the taluka headquarters the treasury officers have a currency chest where money is locked up without earning interest. If that money could be drawn out by the taluka branches or by local associations, or if some portion of that money is kept with the Provincial Banks on terms to be settled mutually, it would help the co-operative movement and remove the difficulties in the way of branch-banking.

48,949. I would like to ask you a question on your answer to our Question No. 20, which you deal with on page 142 of your note. There, in the matter of marketing, you advocate the creation of societies designed to sell the produce of their members. Do you take the view that the moment is ripe for a very considerable extension of selling facilities? Are you in favour, at this stage of the development of the co-operative movement, of

any substantial increase in the number of selling societies? Do you think the time has come for that?—Before replying to the question, I desire to inform the Commission that a wholesale society was started in Bombay a few years back, but that owing to some differences between the promoters of that society and the then Registrar, the society had to be wound up. I think myself that if there is a large number of primary sale societies in the villages we can easily help them by giving them advice as to the time when they should sell, whether they should hold the produce or not; I do not want to see any speculation carried on by these societies, but, if a large number of sale societies are started, we could help them. The reason why sale societies were not started is because it has been said that there is nobody to help them. The movement is thus not able to be started. I want the Commission to lay down a bold policy by which the charm of the vicious circle may be broken.

48,950. Would you turn to page 143 of your written evidence, regarding the welfare of the rural population? In answer to our Question 25, you say that money can only be made available when Government lays it down as a general policy that the proceeds of all taxation levied in rural areas should be utilized in those areas?—I have used the word "all"; I want to modify it by putting "a great portion of it" in its place. I feel that money is taken from the agriculturist who is really the backbone of the country, and it is used in the towns. I want a greater portion of that money to go back to the agriculturist in some form or other. The agriculturist should not be treated as if he were merely the earning machine, and whose money would go to places which he would perhaps never see during his lifetime. He will never know of improvements made in the cities and towns and he will practically die as poor as ever, without coming under the influence of urbanization. I want to see steps taken for him to be urbanized, so that it may be made worth his while to live in rural areas, and thus obviate the necessity of his running down to the cities or towns as he does occasionally.

48,951. Do you mean, by the extension of the principle of local taxation to be spent on local objects, or do you mean by a hypothecation of the general revenues?—I would like to see an allocation of general revenues. It is not only in the interest of the cultivator but also of the State itself that part of the money should go back to the cultivators. The cultivator has certainly not got sufficient money to put back into the soil to make up for what he has taken from it, and you cannot therefore expect the land to give him a good return. For instance, we have seen that the outturn per acre is going down; then there is also the question of the well water, and here also you will see that the water in the wells is going down. My friend, Sir Henry Lawrence, has made charts to find out how far the rainfall affects the crops. Some scientific enquiry should be made to find out why the water in the wells is going down, whether it is due to a continuous fall in the average rainfall or to some other cause. I want the Government to pay greater attention to the needs of the agriculturist, than even to the question of beautifying Bombay or Delhi.

48,952. *Professor Gangulee*: You tell us on page 138 that you cannot help saying that neither the Government of India nor the Provincial Governments have, till now, evinced a general interest in the economic condition of the people. Was not the Department of Agriculture and also that of Co-operative Societies started by the Government of India?—I have referred to that. The fact that this present Royal Commission has been appointed is a positive proof of there being a need for it; that is a distinct evidence that Government think that proper attention has hitherto not been paid to these subjects, and hence they have felt it necessary to appoint this Commission.

48,953. Could you kindly tell us what assistance the non-official agencies have given to these two organizations, namely, agriculture and co-operation?—Very little as regards agriculture.

48,954. Would you agree with me that, in these two departments, non-officials have done very little?—In the Co-operative Department we have done all that we can; but in the Agricultural Department I fear we have not done much. If, however, you go to the root of the question and ask whether the non-officials have paid any great attention to the agriculturist until very recently, then I would unhesitatingly say "No."

48,955. Reference has been made to adult education, and you yourself refer to the efforts that were made in this Presidency through the help that was given to the movement by Sir Vithaldas Thackersey. Why did that movement fail?—The movement did not fail. Before his death Sir Vithaldas Thackersey appointed executors, of whom I was one, and owing to the slump in the market the executors found themselves in difficulties and therefore could not continue the money, and it had to be stopped.

48,956. Are you satisfied that the organisation was a sound one?—It was doing good work.

48,957. You do not think that it was a luxury in which some of the enthusiasts indulged?—No; it really did good work, and a perusal of the report of the Registrars of Co-operative Societies of those times would bear me out.

48,958. Do you think yourself that this adult education movement was really a people's movement?—That is rather difficult to say because the experience was short. But the fact was that the members of the society who were illiterate were being taught sufficient to understand what was being read to them and they were able to take an independent interest in their own work.

48,959. When you suggest that non-official agencies should have free scope for effort, what have you in mind? What is the difficulty now?—There is no question of difficulty; there is scope here not only for Government action but for all. We are getting funds from Government, and we have decided that there should be three distinct agencies. That was the intention of Mr. Ewbank, with whose help we started the Co-operative Institute. The intention was that the propaganda work, the educative work, should be done by the Institute, the financial work by the Co-operative Bank, and the statutory work, that is registering, making preliminary inquiries and auditing, should be done by the Registrar. These three agencies work very well together here.

48,960. This co-operative movement is now about 20 years old, is it not?—If you take it from 1904, then it is 23 years old.

48,961. Has this movement helped to train rural leaders, as you suggest here?—To a certain extent it has, but not as much as I would wish.

48,962. Do you think the educated people of the country have responded to this movement adequately?—We do not go so much to the educated people of the urban areas; we go to the villages, and the village people have responded.

48,963. Through whose efforts have they responded?—Through the efforts of the official Registrar, through the efforts of my Provincial Bank and through the efforts of my friend Mr. Devadhar of the Co-operative Institute.

48,964. You are connected with the University here. Do you find students in the University taking an interest in rural economics?—They have very recently begun to do so.

48,965. Do you see any indication that we can look to the University in the future for rural leaders?—I do not know whether Dr. Mann has sub-

mitted the note he prepared after making village inquiries with the help of the agricultural students, but I think that he would be the first to admit that some of the students are very promising.

48,966. *Mr. Calvert*: When you say that most Indian economists and all political thinkers think that the rural people are getting poorer, do you include the Punjab in their sphere of thought?—Excepting the irrigated areas, that is the feeling. You in the Punjab are in the happy position of having irrigation cheaper than we have, and that again is another grievance showing that the Punjab is given preferential treatment. But leaving that point aside, I believe the country, excepting of course the irrigated areas, is getting poorer.

48,967. *Sir Henry Lawrence*: Then you would also omit Sind from this statement?—There are limitations; Sind is no doubt just getting rich, but Sind has its difficulties also.

48,968. Do you include or exclude Sind, which is under irrigation?—But that is not the same kind of irrigation.

48,969. *Mr. Kamat*: Speaking about the rural people getting poorer, has not Indian non-official opinion always pressod on Government the need for economic inquiries to find out exactly whether the people are getting poorer or richer?—Yes, that is so.

48,970. And Government have turned a cold shoulder to such detailed inquiries; is that your opinion?—Government have not done enough; they have carried out certain inquiries, but that is not enough. The Legislative Assembly, it will be remembered, objected to the appointment of the Taxation Inquiry Committee before the Economic Inquiry Committee. They said that they did not want to see the cart put before the horse, that before the taxable capacity of the people was ascertained, an inquiry should be made first into their economic condition. Government, of course, appointed an Economic Inquiry Committee, and the report of that Committee has not yet been attended to.

48,971. Even now, is there any prospect of a further effort being made to take any action on the majority report, to find out the economic condition of the people?—I fear not. But there is a difference of opinion. The Punjab wants a specialised inquiry in selected or typical areas. The majority want a general inquiry in all areas. Here are two experts; here is Mr. Calvert and his work on the one side, and Sir Visvesvaraya on the other. Government can easily make up their mind, at least select one method, and have it carried out in a thorough and systematic manner in all Presidencies. That they have not done.

48,972. Therefore, they have not proved in a scientific manner that the rural people are at the present moment richer than they were before?—It is impossible to prove it. If the population is increasing and the productive capacity of the land is not increasing, the population ought to get poorer. That is a hypothesis on which I do not think there can be any difference of opinion.

48,973. At all events, they have not proved by a definite inquiry that the people have become richer. That is not a proved fact?—No.

48,974. And, in the absence of a fact being definitely proved, either party is only looking at what is a moot question, namely, whether the people are getting richer or poorer?—Those of us who go to the villages and see the agricultural condition of the people can say that they are getting poorer, as Mr. Calvert might say in the case of the Punjab that the people are getting richer. I do not object to that statement; it might be correct. If I may refer to a question that I heard Mr. Calvert ask the previous witness, Mr. Calvert assumed that the land revenue was 2 per cent. to 6 per cent. of the gross income. But the Anthony-Macdonnell Commission has stated

that in Gujarat it is 20 per cent. of the gross income, and that about 7 or 8 per cent. is the average in the Deccan, where there is one lean year, one famine year and one good year.

48,975. *Sir Henry Lawrence*: In what year was that report made?—In 1901, after the famine.

48,976. That was 25 years ago?—Things have not improved; they have got worse, if anything.

48,977. *Professor Gangulee*: In this connection, I would like to draw attention to your own note. You say it is not advisable for Government to conduct economic surveys?—Government can always help non-official economists and public men in doing their work. That is what I suggested. As President of the Economic Conference in Benares I suggested two years ago that we might form an association. Let Government give the money, appoint their experts and help us. In the same way, instead of appointing a Commission and giving it a big name, let us have two or three non-official experts, and let Government give their experts. My sole object in saying that it should not be a Government inquiry was that people will have greater faith if the work is done by the Economic Association that we have started.

48,978. *Mr. Kamat*: Would you say that the people are getting poorer throughout all the Provinces?—I should not like to answer the question.

48,979. When an economic inquiry is wanted by you, what sort of inquiry do you want? Do you want a semi-official inquiry?—I have said that I should like to have it conducted by the Economic Association which we have recently formed, with the help of Government and the assistance of experts. We might have a representative of the English and Indian Chambers of Commerce.

48,980. What I was trying to point out to you was that, until the fact whether ryots are getting poorer or richer has been proved, the official view should not be simply to pooh-pooh or ridicule the other party and say that they are wrong?—I say we are right. Nobody can say that we are wrong.

48,981. Are you in favour of remedying the evil of fragmentation by the co-operative movement only, or are you in favour of legislation throughout India?—I fear you will have to have legislation. We cannot do without legislation. The sentiments of the people are strongly opposed to it. What could be done by Mr. Calvert in the Punjab cannot be done in Bombay without legislation. Our people are more individualistic and more liberty-loving.

48,982. *Mr. Calvert*: Have you exercised the same patience?—No, nor the same compulsion either.

48,983. *Mr. Kamat*: A suggestion has been made in this Province that there should be a Society for the Service of Rural India. Do you think the response from educated men, if such a society were started, would be quite ample, judging by the public spirit of this Province?—I fear not.

48,984. Judging by the various public institutions which you find in this Province, conducted purely on a public spirit basis, you think the response would not be adequate?—I fear so.

48,985. *Dewan Bahadur Malji*: Except in the case of large landholders, do you think the ordinary cultivators can maintain themselves unless when helped by a subsidiary industry?—They cannot, and that is the reason why, at the last Registrar's Conference, special stress was laid (I hope Mr. Calvert will correct me if I am wrong) on the Agricultural Department working in the interests of the small landholder. That is what we resolved at the last Registrar's Conference, because we felt that he cannot maintain himself properly without a subsidiary industry.

48,986. Subsidiary industry is the most important question that demands attention?—Where it is not possible for him to enrich his land and grow some other crops and get better returns, we want both. I want the Agricultural Department to try the one and the Industries Department to try the other.

48,987. Of course, you have a very large experience of revenue administration both in the British service and in State service?—I have been abused for it.

48,988. May I know if you can help the Commission with an answer to the question how much area of land one family would require to maintain itself, a family to consist of a man, his wife and two children, in the case of both dry and irrigated land?—The answer will differ.

48,989. You can give separate answers for wet land and for dry land?—In Bhavnagar, where I have served as a revenue officer, we considered that 50 bighas, which is equivalent to 20 acres, of dry land is necessary to maintain a family.

48,990. *Professor Gangulee*: What crop?—I cannot say definitely. I think between 10 and 15 acres would be necessary, under the present prices, in British India.

48,991. *Dewan Bahadur Malji*: 10 to 15 acres would maintain one family of three people?—I have not gone through the family budgets, and cannot give any definite opinion.

48,992. What would be the crops, deducting the expenses?—I have not worked it out.

48,993. You calculated that, in Bhavnagar, 20 acres would be necessary, and 10 to 15 acres might answer the purpose in British India in the case of dry lands?—Yes.

48,994. What about wet lands?—I will not say more than 6 acres; mind you, it is absolutely necessary. This is the minimum.

48,995. What would be the minimum requirements of one person for a year, from your point of view?—May I refer you to Professor Shah's book? He has actually worked out those figures, and he proves (it is for the economists to find out how far it is true) that one man in three starves, or, what is much more disastrous, all agriculturists in India get two-thirds of their needs every day and go down in health. He has not been contradicted, so far as I know.

48,996. We have to find out ways and means to increase production?—That is the thing.

48,997. If the land is not owned by the cultivator, then he has to get land on rent for cultivation?—Yes. The *sowcar* becomes the landlord and the agriculturist becomes the tenant.

48,998. There is no provision against rack-renting at all?—I fear not, but there ought to be. As I said in the Legislative Council a few days ago, a Tenancy Act should be passed to protect tenants against rack-renting by landlords.

48,999. Against rack-renting only, or to make the land inalienable?—There are the representatives of agriculture in the Council; I cannot say what they really want.

49,000. But there certainly should be a provision against rack-renting?—Yes.

49,001. *Sir Henry Lawrence*: You referred to the opinion of Professor Shah?—Yes.

49,002. Do you accept his opinion?—It has not been contradicted. I put it to the Government of India, and they have not contradicted it.

49,003. Do you accept those opinions?—I will not say that I accept them. I have merely said that they have not been contradicted.

49,004. *Dr. Hyder*: Have you seen Mr. Moreland's book and the evidence that he has brought together?—I have seen it, but I have not studied it carefully. I will not be able to give you any definite information on the subject. It is an old book, if I mistake not; Professor Shah's book was published in 1925.

49,005. You say the country is becoming poorer. Mr. Moreland has given his evidence in book form?—Mr. Findlay-Shirras has done the same. He did it after Professor Shah's book was published, and he gives the annual income of an individual as from Rs.100 to Rs.125.

49,006. You have been connected with Native States?—I was there 25 years ago; I have forgotten almost everything about it.

49,007. Are the people there becoming poorer or richer?—They also are in the same condition. When they get poorer they come to British India to increase, perhaps, the unemployment here.

49,008. *Sir Henry Lawrence*: To get richer or poorer?—To get better. When they are getting poorer there, they come over here to save themselves, I said they were getting poorer.

49,009. *Dr. Hyder*: All this poverty is due to the British administration? —Who said so? I have not said so. I did not mean to convey that information.

49,010. *Sir Henry Lawrence*: Does Professor Shah say so?—He does not say it in so many words, but he insinuates.

49,011. *Dr. Hyder*: With regard to an economic inquiry, have you considered how big a task it is? When statements are made about the poverty or riches of India, then everything must be made sure. I was wondering whether you had considered that it was a very big task?—For that purpose the Government of India appointed the Economic Enquiry Committee. which was to be preliminary to a rural enquiry, and they have not done it. That is my grievance against the Government of India, that they appoint Commissions and Committees and then quietly pigeonhole their reports.

49,012. *Sir Chunilal Mehta*: Quite apart from the question whether the condition of the agriculturists is getting worse or not, you are of opinion that something is required to make it better, even if the condition is good? —Yes.

49,013. You suggested just now that your plan would be greater production?—Yes.

49,014. With regard to the irrigated tracts, the conditions in the Punjab are to a smaller extent being found also in the irrigated tracts in this Presidency?—Yes.

49,015. What would you do with regard to the dry areas?—I would do what you have done as Revenue Member. You appointed an officer, Mr. Lowsley, specially to look after small irrigation works for four districts of the Deccan. Expand that work, and if you cannot get Superintending Engineers for it, have Engineers of a lower grade. Let the whole work be done systematically. The other thing is, what is to be done to prevent the bad effects of famine? Fodder reserve is the remedy, that is being tried in the Bombay Presidency. What I want is a real systematic effort made to improve the condition of the agriculturists, both as protective measures and as productive measures.

49,016. The Agricultural Departments were designed for that purpose. for improving the productivity of the soil?—That was the idea.

49,017. By selection of seed and other methods?—That work has been done, and very well done, at least in our Presidency.

49,018. It is after all limited in its scope?—Yes.

49,019. Why is that?—Because the people will not take to it. There are two reasons. The people either do not understand it, or the results are not brought to the people.

49,020. Do you not think that there are social causes also at work, and some social work requires to be done in addition?—If you mean, by social work, improving their economic position, then I agree; they must have more money to spend. The other thing is to educate them in the sense that they may be able to understand the advantages of demonstration farms. As has been said by the Punjab Educational Department, people who laughed at the educational and demonstration farms there are now actually coming to those farms to get their seed and to see the experiments that are going on. They have taken one of our best educational officers; Sir George Anderson belonged to the Bombay Presidency and he has been taken by the Punjab.

49,021. You said that part of the trouble is due to the fact that the population is increasing while the land, of course, has remained the same?—That is true.

49,022. There has been a little expansion of cultivation, but the best lands were already cultivated before?—Yes.

49,023. Do you find in your experience that people now work on the fields in the same way as they used to do before?—The poorer people do. With regard to your previous question, I do not know whether you wish me to discuss the question of birth control?

I am not going into that; that is rather too wide a question.

49,024. While there is work started by Government and helped by the people, in order to get the full benefit of this scientific research and propaganda is it not necessary to have some kind of organisation which will induce the people in the villages to improve their conditions and spend less on ceremonial occasions?—I will divide my answer into two parts. The first work, that of bringing the results to the cultivators is, and will continue to be, done by the taluka associations which were started when you were Minister; that work is really splendid work; we are at the beginning just now; the result of the work of these taluka associations will be seen after some years, and I am quite hopeful that if we examine this question at the end of 25 years, those of us who are alive will be able to see that that has done as good work as the co-operative movement itself. The second thing is to teach the people to spend less on luxuries, marriages and so on. In the first place, I do not agree entirely with the view held by many people that the agriculturist is really a spendthrift; are you surprised and morally indignant if on some occasions he wants to enjoy life? He would not be human if he did not do so. But the co-operative movement is teaching thrift to a certain extent, and I think we should lay more and more stress on the moral side of the co-operative movement by teaching them thrift and teaching them how to economise, because if the agriculturist really understands that it is in his interests to save money and that it is simply folly to spend all his money, he will save.

49,025. But you must have some kind of organisation to carry these things out?—We have been trying to have a social workers' conference in the villages. The social workers' conference in Bombay can hardly meet the need of the City of Bombay. My friend Mr. Kamat asked me whether, if we started an association of that kind, we should be able to find workers. I fear we will not.

49,026. Is it not necessary to make an attempt to find and train these men?—Do you want to cry down our young men?

49,027. No, but I do not take so hopeless a view as you do?—Perhaps I am old and am getting pessimistic.

49,028. What I really want to get from you, after your experience of so many years in so many walks of life, is what you want this Commission to do. Is it enough for us to say: "We want the Agricultural Departments multiplied or their activities expanded"?—No, nothing of the sort; I do not want that to be done.

49,029. It is not only money that is required?—It is money and men that are required. Money you can give, and ought to give, from the income of the agriculturist; men you can provide, but it will take time.

49,030. Then why do you fight shy of the hope of an organisation that will provide the young men who ought to live in the villages?—I do not fight shy of it, but I do not want you to be too hopeful; it is a difficult task; work is needed. If we, the leaders in the towns, really put our hearts into it, work for the agriculturists as we want Government to do, and really co-operate with them, I believe the younger men will come up. But that requires propaganda work: you require to go into the villages and the smaller towns and say: "This is your duty to the poorer people, are you prepared to do it?" I think my younger countrymen will rise to the occasion, but it will take time and it will require work.

49,031. So that if the Commission recommended that more money should be placed at the disposal of the Provinces to be spent on the schemes that you mentioned just now, expansion of the work of the Agricultural Departments, minor irrigation schemes in dry areas, and so forth, and at the same time work towards the creation of this body of workers, that is what we ought to have now as far as we can see?—I quite agree; I want both to be done, but the latter portion of the work will have to be done more by non-official agency, with the support of Government money and experts. As I said in the Legislative Council the other day, if the non-official members opposite are prepared to work, I shall be only too glad to work whole-heartedly and co-operate with them in improving the condition of the agriculturists; that is what I think ought to be done, and in the short life that is given me I am prepared to work for it.

(The witness withdrew.)

The Commission adjourned till 10 *a.m. on Saturday, the* 26*th March*, 1927

Saturday, March 26th, 1927.

BOMBAY.

PRESENT:

THE MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir HENRY STAVELEY LAWRENCE, K.C.S.I., I.C.S.	Raja SRI KRISHNA CHANDRA GAJAPATI NARAYANA DEO OF PARLAKIMEDI.
Sir JAMES MACKENNA, KT., C.I.E., I.C.S.	Professor N. GANGULEE.
	Dr. L. K. HYDER.
Mr. H. CALVERT, C.I.E., I.C.S.	Mr. B. S. KAMAT.

The Hon'ble. Sir CHUNILAL V. MEHTA, DEWAN BAHADUR A. U. MALJI (*Co-opted Members*).

Mr. J. A. MADAN, I.C.S., Mr. F. W. H. SMITH (*Joint Secretaries*).

RAO BAHADUR GOVINDBHAI H. DESAI, Naib Dewan, Baroda.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH.—(*a*) (i) *Research to be on a Provincial and regional basis.*—As the conditions under which farming is practised are different in different parts of the country the study of factors affecting the welfare of the agriculturist must not only be provincial but even regional in character.

Systematic examinations of indigenous methods necessary.—Very little of real research bearing on the scientific value of the indigenous theory or the traditional methods of agriculture seems to have been done beyond the mere general presumption that since they are antiquated they must be generally wrong. There has been no systematic effort at studying the why and wherefore of the prevalent practice in a really satisfactory manner.

Value of popular beliefs should be investigated.—Investigation has yet to be made about the scientific value or otherwise of certain beliefs in Gujarat and Kathiawad which have taken a strong hold of the farmer's mind and on which he implicitly relies for his future hope or disappointment. For instance, Bhadali, an astrologer who lived about three centuries ago, has left sayings, of which the following are few samples rendered into English:—

"If there is a rain in *uttara* there will be so much grain that even dogs will have plenty."

"If there is a rain in *bharni* the husband will have to forsake his wife."

"If there be lightning on the 5th of the white half of *Ashad*, sell all your grain and keep only seed and your bullocks," *i.e.*, it will be a year of plenty.

It would be well if the Agricultural Department collected them and investigated their value.

The lines of research work necessary.—In fact, too much reliance has been placed on conclusions arrived at in other parts of the world under entirely different set of conditions and little fundamental study on the spot has been made of the basis of the agricultural industry. The fertility of the Indian soils and its reaction on crops and crop out-turns have, in the majority of cases, to be merely guessed from scientific records obtained

elsewhere. But the practice of agriculture being the resultant of forces of a biochemical nature, the response of the plant under a totally different set of conditions must be studied under the identical conditions of working and this has not yet been the case. Too little research on the Indian conditions, too much generalisation from humid countries and strong opinionating upon indigenous practices has created a discontinuity of action between research and education, an unbridgeable gulf between recommendations made and their translation into effect and this has resulted in rendering the teaching or improvements almost without a broad, sound basis. Fundamental research of the factors governing crop production should precede any attempt to teach others, and that having not been made anywhere to anything like the extent it should have been done, a feeling of voidness and vagueness pervades the atmosphere of the institutions which are charged with the responsibility of betterment of farming.

Administration and Finance re: research.—As the Government of the country stands at present, there can be no two opinions regarding the fact that the organisation of this kind of research must be on a provincial basis, that its administration should be by co-ordination of the work by the Central Government and the expenditure for these two different phases should be apportioned to the respective Governments. Thus, the research fund should mainly come from the provincial revenues, but all the expenditure for creating and maintaining an organisation for co-ordinating the work should be borne by the Central Government.

(ii) *Veterinary Research.*—The conditions regarding veterinary research are somewhat different. The results of that reseach ae more generally applicable over the greater part of the country, and the object of the research will be far better served by having a centrally placed institution which may be financed by provincial subsidies. This should apply only to the research part, which, for that matter, may be handed over to the Central Government. The other usual veterinary relief and propaganda activities should of course be a provincial matter and should be for best results under the control of the Director of Agriculture.

Crops and diseases in Gujarat that need investigation.—Very few crops of regional importance have received adequate attention owing to the lack of any definite programme, and the desultory nature of the work undertaken. Referring to Gujarat, for example, while it may be said that something has been done for cotton, even that something is, in point of volume, very little, considering other areas under cotton which are still fumbling in any way they like; while next to nothing has been done with regard to *juar*, *bajri*, or rice, which, speaking quantitatively, are crops of equal, if not of greater, importance. Cotton, tobacco and groundnut are liable to a devastating course of wilt, but no serious notice of this has so far been taken.

The smut of *bajri* still baffles the ingenuity and the research of the mycologist, and other pests and diseases take their toll in increasing proportions.

Cotton and tobacco wilt and white ant extermination are problems to which it will pay to turn early attention.

QUESTION 2.—AGRICULTURAL EDUCATION.—(1 and 2) *More institutions wanted.*—The supply of teachers and institutions is not sufficient. There is an Agricultural College at Poona for the Presidency. But there are very few district schools where those who have received primary vernacular education can learn scientific agriculture.

(3) *Teachers should be recruited from agricultural classes.*—Teachers in rural areas should, as far as possible, be drawn from the agricultural classes. Agricultural education is designed to meet the needs of pupils who intend to follow agricultural pursuits, and this can well be imparted

by an agriculturist who, in addition to the training in scientific agriculture imparted to him knows also the agricultural practices followed by the people and can easily understand and demonstrate what is required to effect improvements.

(5 and 6) *History of agricultural education in Baroda.*—The main incentive which induces lads to study agriculture is to secure service. And the pupils are mainly drawn from non-agricultural classes. The history of agricultural education, until very recently, has been most disappointing in the Baroda State. As a progressive thoughtful ruler, His Highness the Maharaja Gaekwar had provided for agricultural education in the Baroda State as early as 1885. A vernacular school of agriculture was opened in connection with the Technical Institute called Kala Bhavan; facilities for collegiate agricultural education were provided in the Baroda College under the able guidance of Professor (now Sir) Thomas Middleton, and special agricultural courses were opened in connection with farms on three different occasions at three different places but without genuine response from the cultivator class at any time. Those who joined the classes were for the most part not the sons of farmers or those who wanted to follow agriculture as a profession, but non-agriculturists, who took up agricultural education simply because it could secure posts in Government service; and as soon as the prospects of giving posts were withdrawn, the classes had to be closed for want of students. The last revival of agricultural course was one in this year by offering scholarships sufficient to cover all expenses to young men from the farmer class able to read and write, and a six months' course was arranged. As only genuine lads of the agricultural classes were admitted the number that came forward was only 18 from the whole State.

(7) *Practical and theoretical training necessary.*—Neither skill nor business ability can be learned from books alone nor merely from observation of the work and management of others. Both require active participation, during the learning period, in productive farming operations of real economic or commercial importance.

"Home Project" Schools.—School farms at present can hardly claim to be thorough-going commercial farming concerns. Perhaps the best use to which an agricultural school, large or small, can put its own land and equipment is that of illustrative operations. The most flattering school photographs show by far too few participants and far too many spectators. To see a thing done, however good the demonstration, is not to do it oneself. The problem then of providing for actual participation, both as manager and worker in productive farming simultaneously with his classroom instructions for the boy in the vocational agricultural school, is of fundamental importance. Its solution has been found in America by what is called "Home Project" schools. The plan of the first school of this kind, the Smith's Agricultural School at Northampton, was published in 1908 in his first booklet as follows:—

> "Preparation for certain kinds of work will be the primary aim of this new school. It will provide training in agriculture with a view to practical and profitable farming. Every effort will be made to relate the training of the school intimately and at once to practical affairs of the school premises . . . Pupils preparing for farming will best serve their own ends and the ends of the school by living at home. While the fresh man is studying the elements of soil and plant life, he will have plots of ground at home, preferably parts of the kitchen and flower garden, where he will apply the methods taught by the school on soil he may some day own. There, his methods may be compared with his father's, and those of his neighbours'. He will be keen to learn from them, perhaps his people may now and then learn something from him. In the sophomore year there will be something like

training in handling the smaller animals of the farm, the sheep, or swine or poultry, or bees; in the junior year, in connection with fruit growing and market gardening; and in the senior year, in handling the larger farm animals, including dairy cattle. Every farm represented by a pupil will thus become an essential part of the working outfit of the school. There will be no sundering of the ties of home when school ties are formed; on the contrary, a good home farm shall become dearer to the boy's heart, more enjoyable and more profitable every day. Each farm will contribute of its best to the training of the school; it is hoped that the school will prove to be a help to every farm from which a pupil is sent."

(8) *School gardens and farms.*—(*a*) Nature study, (*b*) school plots, and (*c*) school farms are necessary in connection with village schools to keep up the children's interest in the avocation they have to follow. School gardens and farms would help to create an agricultural bias, and should be maintained in connection with all primary schools in order to show the pleasure and dignity of manual labour and to furnish materials for close observation of nature. Many difficulties present themselves in having successful school gardens, such as lack of water, of good soil, or of space, trouble in keeping out animals where there are no fences and the hard work of tending the garden the whole year. But it is quite possible to remove them, as has been done in some places by teachers with real zeal for the good of their pupils and genuine interest in their welfare. Sympathy and help from the department, providing implements, securing land, and giving small prizes to the best workers might also help in making school gardens and farms universal instead of rare as at present.

Agricultural Bias Schools.—In the Bombay Presidency, agricultural bias has been introduced in the higher primary school at some places. Special books and syllabus of study have been so devised as to keep up the interest of the children in their hereditary profession of agriculture. The chief features of this syllabus, which has been worked out after a long and careful consideration by the education and agricultural departments, are:—(1) The closer co-ordination of arithmetic, nature study, geography, and drawing with rural life, (2) the definite study of the elements of agriculture both in theory and practice, (3) practical work in the fields, together with carpentry and smithy work. The aim of this course is not purely vocational but rather pre-vocational; education for agriculture rather than education in agriculture. The special work done by the boys who choose this course does not occupy their whole day; they continue to work with the other boys in general subjects of education. The special teachers necessary for this work have been very carefully selected and trained for a year at a government agricultural school. They belong to the cultivator class, and in some cases have landed property of their own. With one or two exceptions, all are second-year trained teachers. After a year's training in an agricultural school they rank as third year trained teachers.

(9) *Agriculture graduates seek service.*—The majority of students who have studied agriculture in colleges are employed as government servants or private servants. Very few of them have taken to agriculture as a profession. I had occasion to ask those who sought service after becoming B.Ags., why they did not follow agriculture as a profession, and the reply I received was that they had neither land nor capital to do so.

(10) *Making agriculture attractive for middle-class youths.*—Agriculture can be made attractive to middle-class youths by giving them land free of assessment for a certain number of years on the restricted (unalienated) tenure.

(11) I am not aware of any.

(12) Adult education in rural tracts can be popularised by night schools.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(a) *Method of propaganda.*—In Baroda, we have proceeded on the assumption that the farmer, though very conservative, is not such a fool as not to take up a new thing, if it is shown to his satisfaction that it is to his advantage. Leaflets, pamphlets and lectures are good in their way, but their contents hardly reach the ears of the farmer. Very few of them can read them personally and they are hardly ever read over to them. The best way for doing propaganda work among farmers is to show them at their own village and their own farms that better results can be obtained by using improved seeds, manure, and the practices recommended by the Agricultural Department. The best demonstration farm is the farm of a leading farmer in a village. One successful demonstration there is more powerful than a hundred on the Government demonstration farm.

(b) *Field demonstrations.*—Field demonstrations to be more effective should be as numerous as possible. They should be simple in plan and execution and should always be associated with a check plot which is suitably marked and should not call for out-of-pocket expenditure. The work of introducing agricultural improvements should be separated from that of experiments. The entire propaganda work of demonstration, exhibition shows, seed and implements stores, advice by correspondence, publication of popular literature, &c., should form a branch of the Director of Agriculture's office with a suitable number of assistants. The assistants should devote their attention mainly to the study of the requirements of localities and should devise means of bringing improvements to the notice of the cultivators. This will be the extension department as is known in America.

(c) *Use of co-operative societies.*—Some sort of bounty or distinction would often tempt a leading farmer to adopt expert advice. A co-operative society can be a very powerful centre of activity if it is properly handled by the Registrar and their influence, observation and practice would go a long way in popularising expert advice; only the agricultural expert must have full co-operation of the co-operative staff for the common aim of improving the lot of the agriculturist.

(d) *Instances.*—The use of ammonium sulphate in cane in Vyara, early *kolam*—a type of rice in Navsari, or the 1027 cotton are instances where propaganda has been very successful. On the other hand, the usefulness of the silo, in spite of the intensive propaganda, has never appealed to the public with the same intensity. The use of chaff-cutters is another instance of a useful practice not attracting as much attention as it deserves. It is difficult to assign any reason beyond mentioning that it fails to catch on the agriculturist's method of reasoning or is unsuitable to his mode of living.

QUESTION 4.—ADMINISTRATION.—(a) *Co-ordination necessary.*—That there is a lack of co-ordination in work is evident, but how to secure it without injuring the susceptibility of the Provinces is a difficult question. To prevent duplication of efforts and to indicate the general tendency of the results achieved would naturally be the main purpose of this co-ordination.

Yearly meetings helpful.—The old idea of submitting programmes and results of work done during the previous year may do this if the meetings are held every year. The reasons why Provinces had been unable to respond to this call from the Central Government in the past seems to be largely the unwillingness of the Provincial Government to undertake any expenditure consequent to these meetings, but if no call for it is made on the Provinces they may permit their staff to participate in the proceedings.

Functions of the Central Government.—The part of the Central Government in this connection should be purely of co-ordination and not necessarily of supervision in any way. If the Government of India could do this and

act as a general repository and distributing centre of information, its function in that capacity would be of great help to the Provinces. The Government of India may in addition arrange to provide facilities for a really first-class postgraduate training in the different phases of the agricultural industry. More than this need not be asked to be done by the Imperial Government.

(b) *Experts needed in Provinces.*—An additional expert staff is very badly needed but not on the Government of India staff. The experts are needed more in the Provinces. These provincial experts may form their own committee of research and investigation under the guidance of the Government of India. If the Provinces are alive to their own responsibilities in the matter of this subject, there will be little left to be done by the Government of India for technical staff, on any applied research. The only function that the Government of India need perform under these conditions is one of bringing all in line with each other regarding work done or to be done.

QUESTION 5.—FINANCE.—(a) *Organisation of agricultural finance.*—The present organisation of agricultural finance is anything but satisfactory. Excepting the little financing done by the co-operative credit societies and the *taccavi* loans granted by the Governments, the main bulk of the work of agricultural finance is the monopoly of the private moneylenders. The joint-stock banks in the country do not, as a rule, finance agriculture, and looking to their organisation and their method of work, it is not possible for them to do so. Unlike Europe and America, it is not recognised here that agriculture is also an industry and that, like all other industries, it requires a carefully devised system of financing and that the nature of the financial needs of agriculture is categorically different from that of trade or industry.

The sowcar methods.—In dealing with the problem of agricultural finance, what is more important to examine and more to the point is the moneylender's method of doing his business. It is not necessary here to go into the various intricacies of the *sowcar's* business as they are all by this time fully exposed, and at several places legislation giving some protection to the farmers against the tricks of the unscrupulous *sowcars* has been passed. Under the existing conditions, the *sowcar* has found a place for himself in the agricultural economics. But it is nevertheless true that at best he is a necessary evil and has to be replaced at the earliest opportunity by more honest and businesslike institutions which would finance the agriculturists and place them on a road to better business, better farming and better living.

Co-operation the best form of organisation.—Whatever may be true of the financial organisation for other industries, the best and most suitable form for organisation of agricultural finance is the co-operative, both for long-term and short-term finance. The Government system of *taccavi* loans could never be adequate and is in addition highly demoralising and the private village financier has outgrown his usefulness. They must both be replaced by co-operative land mortgage banks on the one hand and the short-term co-operative credit system with its central and provincial banks and the village societies on the other.

(b) *Drawbacks of the* taccavi *system.*—Cultivators are unwilling to take full advantage of *taccavi* which Government gives for agricultural improvements because there is

(1) "Leakage" in receiving it.
(2) "Delay" in getting it.
(3) "Rigidity" in the recovery of it.

(1) Leakage:—Applications for *taccavi* pass through the *patel* and the *talati* of the village. They certify that the applicant is a *khatedar* and that his property is unburdened and then forward the application with their certificate to the Taluka Officer (Mamlatdar or Tehsildar). If any

further inquiries have to be made, he makes them and then he sanctions it, if the amount is within his power, or sends it with his opinion to the Collector for sanction. After sanction, payment is made by the treasury clerk. It is said that the farmer has to tip the various small functionaries for getting sanction and for receiving the payment. He has generally to tip the *patel* and the *talati* as also the treasury clerk. It has been stated that a cultivator is lucky if he gets 75 per cent. of the amount. It is said that in famine times when the cultivators are very needy, it reaches its high water-mark. So long as the people are ignorant and unable to assert their own rights, the graft will always remain. The village official and the taluka staff will always be ready to take advantage of their weaknesses.

(2) Delay:—Sometimes, it takes weeks, if not months, before the *taccavi* is granted and in some cases sanction is obtained when the purpose for the loan no longer exists. The cultivators, therefore, find it very inconvenient to get the loans.

(3) Rigidity of collections:—The rigidity of collection is another reason why the *khedut* prefers the *sowcar* to the Government *taccavi*. When it is sanctioned, instalments are made, but these are collected irrespective of seasons. Even if it is a bad year, it becomes difficult to get postponement and in several cases the village officers have to be bribed to obtain concession.

For these reasons the farmers prefer a money-lender to the Government *taccavi* which they ask as a last resource.

Remedies suggested.—However, so long as a comprehensive system of agricultural finance preferably on a co-operative basis is not properly organised, these loans will have to be given by Government, especially in times of scarcity when heavy losses are incurred by the cultivators and when the *sowcar* is unwilling to grant loans. To remedy the evils recounted above, it is, therefore, necessary that the loans should be given by the Government either through the agency of a land mortgage bank or co-operative credit society wherever either of these exists, and that where loans have to be given directly, a responsible officer, at least of the grade of a *Mamlatdar* should make personal inquiries himself at the village, sanction the loan on the spot, and pay the sum immediately.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (1) *Social demands.*—It may safely be stated that a large part of agricultural indebtedness is due not so much to the demands of the industry as such, but of the social life of the agriculturists. Births, marriages and deaths levy a heavy toll on the earnings from land and are often the occasions either for entering into debts or for contracting further debts. The remedy for this lies in the field of social reform and not that of agricultural finance.

Famines.—Another important cause leading to borrowings by farmers is famine and partial failure of crops. Partly because of the poor yield of the land, and partly because of want of thrift and forethought on the part of the farmer, there is little laid by in average or good years for the lean ones and he is forcibly driven to a money-lender whenever the crop fails to come up to the expectation. What is, therefore, wanted is the raising of the yield of the land to provide a good margin in good years for years of famine and scarcity, the realisation on the part of the farmer that he cannot live up to his income in good years, and institutions which will encourage such thrift on his part.

(2) *Sources of Credit.*—In this part of the country, there are three sources of credit for financing agriculture:—

1. Private money-lenders.
2. The co-operative credit organisation.
3. *Taccavi* loans by Government.

About ninety per cent. of the present capital invested in agriculture is advanced by private money-lenders. They meet all the wants of the farmers, are easily approachable and fully understand the need of the former as well as his capacity to repay the loans. The money-lender visits his client frequently every year, and carefully notes changes in his condition. He is ready on the spot to receive the produce when the crop is ripe in the field. In distress, if the farmer is honest, and hard-working, he puts him on his legs to continue his business over again. This system does not at all encourage thrift, nor does it organise agriculture and place the farmer on a permanently better footing. In the absence of a better system of agricultural finance, the *sowcar* has to be tolerated and as it will be years before a complete system is evolved to replace him, it is necessary to put the following restrictions on the method of money lending by this agency:—

1. That no man be allowed to lend money to a farmer without a license.
2. That the books of money-lenders should be registered.
3. That the creditor must give receipt for payment made by the debtor.
4. If and when asked by the debtor, the creditor must submit account of his *khata*.
5. A pass book, as used by the banks, showing the details of the transactions should be given by the *sowcar* to the farmer.

Restricted scope of the co-operative movement.—The co-operative credit movement, though it has made a fairly good progress in Gujarat, has not yet touched more than a fringe of the problem of agricultural finance. There are yet a very large number of villages without a credit society. The societies where they exist do not cater for more than a small section of the agricultural population of the village and only meet a part of the needs of their members. More detailed suggestions are made in connection with the various phases of this movement in reply to questions relating to co-operation.

The system of *taccavi* loans and its drawbacks have already been dealt with in the previous section.

(3) *Reasons for non-payment of debts.*—These are of two kinds: one, economic and two, psychological.

Amongst the economic reasons are the little margin left even in average years to go towards the repayment of the debt, the high rate of interest and commission which swells the amount of indebtedness, and fresh expenses on social occasions.

The money-lenders are, as a rule, a shrewd class of people and they make it their business to see that the farmer is not completely free from his debts. It is not at all uncommon that in good years when the farmer has money, they encourage him to undertake all sorts of unnecessary expenses by voluntarily offering him additional loans, so long as he has property to offer as security. They generally get more out of their debtors in this way by prolonging the period of their indebtedness than by encouraging him to pay up his debts in a short time.

The other psychological reason is that the chronic state of indebtedness in which the farmer finds himself as a rule, induces a desperate frame of mind and leads him to argue that as the small repayments he can make when he has got some margin, would hardly affect the bulk of his indebtedness or relieve him from the lender's power, why should he not have a good time when he can. "The debt is there," he says to himself, "and will be there even if I pay what little I have," and he goes and spends it on some luxury or other.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) The question of preventing the further fragmentation of holdings and of consolidating those already fragmented is a very difficult one. During the last decade, it has

attracted the attention of the wellwishers of the farmer in this country and has been ventilated from time to time in different places, but little has yet been done except in the Baroda State, where on the recommendation of a Committee appointed by His Highness the Maharaja Gaekwar in 1917, steps have been taken to prevent further fragmentation and a Permissive Act has been passed to effect consolidation of the existing small and scattered holdings on the principle of original ownership as will be detailed later on. The prevention of further fragmentation below the limit fixed is an accomplished fact, but as regards restripping very little has yet been done and propaganda work has to be done persistently to popularise the measure and to induce the requisite majority of the landholders of a village to come forward to make the provisions of the Permissive Act applicable to it.

How fragmentation is brought about.—It is easy to conceive that when our villages came to be organised all the land belonging to them was in the possession of a few families, mostly of the same caste who were the first to settle in them. The fields were then large and land being plentiful and the population sparse, a considerable part of it remained uncultivated. Gradually a part of this land went into the possession of others by sale, gift, etc. What remained in the possession of the original settlers and what went into the possession of others was further sub-divided among their heirs or assignees; and this process of sub-division has been going on from generation to generation. The Hindu, Parsi and Mahomedan laws of inheritance allow a definite share to all heirs. The operation of the law of succession not only leads to the division of large estates into small compact plots, but also not infrequently to the splitting up of individual fields. Every heir tries to get a share from each field instead of so arranging the division that each may get as many whole fields as possible. For instance, if a Hindu land-holder dies leaving four separate fields and four sons, each of them instead of taking one plot will take a fourth part of each plot and thus there will be 16 fields instead of the original four. Again, in making partition of each plot, each party will try to get a slice which will have all the soil advantages of the plot. In addition to partition on account of inheritance, there is also partition due to transfer by sale, mortgage, etc. Not infrequently it is not a whole field that is mortgaged or sold, but only a part of it and it is, therefore, ultimately partitioned so as to lead to a splitting up of the original whole field. This process has been going on for years, and the result has been the present small and scattered fields of diverse dimensions and shapes. If we look at the cadastral map of a village the smallness of the fields and their inconvenient shapes will at once be noticed. Some fields will be found to be ribbon-shaped, some triangular, some trapezium-shaped and so on. It will also be noticed that no convenient means of communication exist between the different fields and in order to reach most of them it is necessary to cross other people's fields. Where the roads exist, they are, for the most part, narrow and tortuous and generally run through water courses. If we see the land register and with its help indicate in a map fields belonging to the same proprietor by the same colour, we will find that his fields are not only small but scattered in different directions. This is the case not in one village or in one taluka, or in one district, but throughout the country to a greater or less degree.

The results of fragmentation.—The disadvantages resulting from the fields being small and scattered are obvious and hardly require any elaborate narration. They may, however, be briefly described as under:—

(1) The farmer must, under the present condition, live in the village and visit his small and scattered fields only to perform the field work which the current crop demands. He cannot live on his farm, and be on the spot ready at all times to improve and guard his property.

(2) Owing to the distance of the various parcels of land from each other, agricultural implements must be carried to and brought back from the fields to the villages and thus much time, labour and cattle power is wasted.

(3) In the houses occupied by the farmers are crowded the cattle and implements; manure is heaped near the village and much labour is spent in carrying it to the fields in carts, a little before sowing time.

(4) There is a great waste due to unnecessary hedges and boundary marks occupying land, and requiring constant repairs, trimming, etc. Cactus and other shrubs of which hedges are made suck up the fertility of the soil and harbour agricultural pests.

(5) The crop in the fields requires careful watching, especially when it begins to ripen, to prevent depredations by wild and stray animals and thieves. If all the fields of the farmer are in one block, one or two men would be able to do it. But owing to their dispersion, watching has to be neglected because of its prohibitive cost, and the farmers suffer a heavy loss from petty thefts and damage by stray cattle.

(6) Wells cannot be sunk and pumps cannot be set up in each and every small field, and so in dry districts, water, the prime necessity of agriculture, is not made fully available.

(7) Labour-saving implements cannot be used for ploughing, weeding, threshing and other operations, and economic agriculture has become impossible.

(8) Some of the small fields lose all facilities for road communication and of irrigation from existing wells, tanks, and canals. Disputes as regards right of way, passage of canal water, etc., arise and lead to law suits, jealousy and feuds which are ruinous to all concerned.

(9) Some of the small fields are thrown out of cultivation, the proprietor not caring to undergo the trouble and expense of cultivating an outlying small piece of land.

(10) Change in rotation of crop is inconvenient. The same system of cultivation has to be followed to avoid the risk of crops being destroyed by herds of cattle let loose on the surrounding fallow fields.

Main cause of Ryot's poverty.—The result of the losses thus occasioned is that agriculture, on the whole, hardly provides a decent living for the cultivator and his family. What remains for him after paying up Government assessment or rent, and defraying the cost of cultivation, is hardly sufficient, in the majority of cases, to last till the next season; and as soon as *Diwali* is over, we find many leaving their homes to supplement their land income by working in factories or elsewhere. Many young people have thus migrated to Africa, Fiji, and other places and exchanged their paternal occupation of farming for that of a labourer. Until the small and scattered holdings are consolidated and their further fragmentation prevented, there is no chance for the cultivator to develop or improve his property, and, as Mr. Keatinge says in his book on Rural Economy, "he can only accept his poverty as due to some unknown cause and grumble indefinitely at the weather or the *sowcar* or the Government."

Remedial measures.—The Government of His Highness the Maharaja Gaekwar decided after the Report of the Committee appointed in 1916-17 that remedial measures were necessary, and that they should be of two kinds; (1) one for the arrest of further sub-division of agricultural land and the other for the reunion of lands already sub-divided. The first being within the power of the Government was at once taken up by amending the Land Revenue Code and thereby prohibiting the sub-division of fields of *jarayat* (dry crop) lands below 8 bighas, 3 bighas in the case of garden lands and below 1½ bighas in the case of rice lands. As regards consolidation, measures adopted are (1) for partial and (2) complete reunion of the

fields of the farmer. The partial reunion is done by encouraging voluntary exchanges and complete reunion (consolidation) is made possible by passing a Permissive Act, which can be made applicable to a village, when two-thirds of the *khatedars*, holding not less than half of the total agricultural land of the village apply to Government for consolidating the lands of all the *khatedars* of the village. I will now describe how it can be done.

Prevention of further fragmentation urgently required.—Of the two measures, that relating to the prevention of further fragmentation deserves of being taken in hand at once; for if sub-divisions go on unchecked the state of things would get worse from day to day. What is urgently needed is the removal of the facilities which make it possible to sub-divide holdings into very small pieces in which agriculture is highly wasteful, if not altogether impossible. After stopping the process of further sub-divisions, the next step to be taken would be to reunite the already divided parts and to effect consolidation, which would take time and may be adopted when people want it.

Raising the standard for sub-division necessary.—The only objection that can be urged to stop small sub-divisions is that it would be a restriction of the people's right to divide their property in any way they like. But this right is already restricted and it is only a question of its extension for the good of the people themselves. For the convenience of revenue administration, some restrictions have already been placed by Government on the sub-division of fields. In the Bombay Presidency, the necessity for a limit to sub-division was recognised by Government in 1865. The limit fixed varies in different tracts and for different classes of land. In Gujarat, it is one acre for dry crop land and ½ acre for garden and rice land. This limit is too low and requires to be raised in the interest of good agriculture; otherwise all fields will be reduced, in course of time, to this low limit, and even to a lower limit, for there is a tendency among the people even to split up fields privately to as small a size as possible by partition. No uniform standard can be laid down as to how far the present limit should be raised. The quality of the land, facilities for irrigation, and such other matters must be taken into consideration before fixing the lowest limit to which a field can be allowed to be divided. The limit will have to be pitched high if the holding is to be truly economic in the sense of allowing the farmer a chance of producing sufficient to support himself and his family in reasonable comfort after paying the necessary expenses. An ideal economic holding for an ordinary cultivator would consist of 15 to 20 acres of fair land in one block with at least one good irrigation well and a house situated within the holding. This desirable area would vary greatly in different parts according to circumstances, such as quality of land, type of cultivators and such other factors. But such a high standard need not be fixed for the present. When the restripping of all the village land has been done, the limit may be raised. Until that is done, it would not be proper to pitch it equally high merely for the purpose of preventing very minute sub-divisions or partition. However, there can be no doubt that the present limit of an acre or half an acre up to which fields can be partitioned is obviously too low. If fields continue to be permitted to be split up into such small parcels, the inevitable result will be the ultimate sub-division of the whole land into such small occupancies accompanied by the impoverishment of the whole agricultural class. Holdings will be small as barely to provide subsistence for those engaged in their cultivation and the surplus from which the assessment is to be paid will be so trifling that the slightest deficiency in the ordinary crop will make it disappear. Though it is impossible altogether to prevent sub-division of survey numbers as population increases, every possible precaution should be adopted for checking this tendency.

The present rule of recognising sub-divisions up to one acre of dry land and half an acre of wet land in Gujarat has been fixed without any reference to the requirements of good farming. In fixing the future limit, the requirements of good agriculture must be kept in view and at the same time it must be seen that the limit is not pitched so high as to cause unnecessary inconvenience or hardship to the people. Perhaps in some tracts the limit may be fixed at five acres for dry land, two acres for garden land, one acre for rice land. Fields of this size, though not ideal ones, would be quite sufficient at least till restripping of all the village lands has been done in the manner to be described hereafter; and when this is done partition below that limit may be stopped without causing any hardship to people whose ideas about the fitness of things will have, by that time, greatly developed.

What Baroda State has done in this matter.—The lowest limit up to which an agricultural holding could be divided in the Baroda State was 1½ bigha for garden and rice lands; and though this was the rule, many survey numbers were divided even below this limit and were recognised as *pot* or *paiki* numbers. Realising the disadvantages to agriculture resulting from such small divisions, His Highness the Maharaja Gaekwar, after ascertaining the opinion of the Panchayats and the non-official members of the State Legislative Council has, since December, 1920, raised the limit for sub-division to 8 bighas for *jirayat* (dry) land, 3 for *bagayat* (garden) land, and 1 bigha for *kyari* (rice) land. Holdings sub-divided to the old low limit previous to this new measure will remain as they are until the remedial measure of consolidation by restripping is applied to a village; but no new sub-division can now be made if the effect of partitioning a field would be to reduce a part of it to a lower limit than that now adopted.

Right of inheritance not affected.—The modest beginning made by Baroda may well be copied elsewhere, and the present limit for sub-division of fields raised to a standard which may be deemed suitable in the different tracts of the country, having regard to the quality of land, mode of cultivation, &c.; and no sub-division below that limit should be permitted. Objections are sure to be raised, as they were in Baroda, by those not capable of understanding the utility of the measure or actuated only by selfish personal motives. The strongest objection that may be urged would be that such a measure violates the rights of inheritance under which each heir is entitled to a definite share of his paternal estate. But it can be made clear that nobody's right of inheritance would be taken away simply because no sub-division below this limit fixed was allowed in the interest of good agriculture. The law of inheritance gives each heir a share, but it does not say that each and every kind of property should be actually divided by metes and bounds according to the shares.

If no division is allowed below the limit fixed, each heir will have the money value of his share, and so his right would remain as it was. The cardinal principle of not affecting anyone's personal rights of succession is to be maintained. Ordinarily, each heir has a right to have his share of immovable property partitioned out to him; but there may be cases in which this cannot be done without deteriorating the value of the property, or making it useless for the purpose for which it is intended. On such occasions, heirs themselves allow one of them to take that property at its highest valuation and divide the proceeds among themselves. Similar action is taken when a family is so small as to accommodate only one out of many heirs. How can it then be said that if Government did not permit the sub-division of agricultural fields below a particular limit fixed, with the aim of keeping it fit for

good agriculture, the right of inheritance would be affected? It would not be affected in the least, for those who do not get their share of land would get its equivalent in money.

Legislation necessary.—It would not be sufficient merely to raise the standard for permitting sub-division of land under the Land Revenue Code. Revenue authorities may not recognise a sub-division if it is below the fixed standard and may also refuse to recognise it for mutation of names. But this would not deprive anyone of his right of ownership; he can get his share partitioned by bringing a suit in a Civil Court. The Baroda State, realising this difficulty, has placed before its Dhara Sabha (Legislative Council) for consideration a Bill in which it is proposed to enact that documents purporting to effect transfer of agricultural land below the fixed standard should be refused registration if such transfer is not made to a co-sharer or to the owner of one of the adjoining fields; and that no Judicial Court should allow partition to be made if by so doing any of the shares would be of a lesser area than that fixed in the Land Revenue Code. Similar action will have to be taken wherever the present limit for sub-divisions is raised, with the object of preventing fragmentation of holdings. Under the existing law (Partition Act of 1893), when, in any suit for partition of immovable property not paying revenue to Government, it appears to the Court, by reason of the nature of the property to which the suit relates or to the number of shareholders therein, or any other special circumstance, that the division of the property, for example a house, cannot be reasonably or conveniently made and that a sale of the property and the distribution of the proceeds would be more beneficial for all the shareholders, the Court has power to direct a sale of the property and a distribution of the proceeds. This provision of the law can be extended and made applicable to immovable property paying revenue to Government, so that it would be impossible to obtain partition of agricultural land below the fixed minimum. The promotion of the good of the State, as a whole, and its people should be the guiding principle and all private interests must be subordinated to it when changes in the existing conditions of things are contemplated. Legislation may not bring about the desired results in a year or two. There will be some incongruity in the real state of things and the records of Government for some time, but there can be no doubt that when the people perceive that the law gives them no absolute right of transfer, or partition of pieces of land below the fixed standard, they will not be so eager to possess them as they are now. And this will gradually lead people to the right mode of thinking, namely, that to divide agricultural land below the limit fixed is not only not beneficial but positively injurious to their interests.

Re-union of divided fields.—After having suggested what action should be taken to arrest the further sub-division of land, we may now consider what should be done for re-uniting the already divided parts. The re-union may be (1) partial, that is, of some fields, (2) or thorough, that is, to the extent of the whole holding. We will first consider measures for partial union.

Voluntary exchanges.—Voluntary exchanges of contiguous survey numbers or partition of them is one of the ways in which holdings of farmers can, to a certain extent, be consolidated or the irregularities of their shape corrected. This is effected by sensible farmers to some extent, but is capable of being encouraged by the removal of difficulties in their way. On a deed of exchange, stamp and registration charges have to be paid in the same way as on a conveyance for sale of property of higher value amongst those making the exchange. Again, when one of the fields to be

exchanged is burdened with a mortgage debt, it is difficult to transfer the burden on to the field to be received in exchange for it. The third reason is that when exchanges are being discussed, each man tries to minimise the value of the other's property and to exaggerate that of his own, and hence the negotiations fall through and no exchange takes place. If the village panchayat or the members of the village co-operative society take interest in the matter and use their influence to promote exchanges by offering their services as mediators, and if the Government gives such facilities as exemption from stamp and registration duties and compulsory transfer of the mortgage debt on the new parcel, provided the security is not reduced, there would be greater inducement to make exchanges than now. *Panchas* selected by the parties from the members of the village boards, the local co-operative society, or other respectable residents of the village may assess the values of the parcels to be exchanged and may equalise the same by making the holder of the field of small value pay to the holder of the field of high value money compensation. If there is a mortgage on one or both of the fields, such charge too may be exchanged by a simple endorsement on the original deed regarding the exchange of property. Moreover, these transactions should be exempted from the payment of stamp and registration charges in view of the improvement to be effected in the agricultural land. Austria, Belgium and other countries have passed special laws exempting cases of exchange of contiguous rural property from the usual stamp and other duties, and India can also do the same without any great loss of revenue.

Restriction on sale of right of occupancy.—Another way of re-uniting divided fields is solely in the hands of Government, and may be resorted to without any difficulty. When survey numbers are put to auction on account of their being relinquished by the last holder or taken in attachment for arrears of assessment or any other similar cause, only those should be allowed to bid in the auction for the sale of the right of occupancy whose fields are contiguous to the land to be sold. This will enable those among them who are prepared to give the highest amount to take up such plots for enlarging their holdings. If the land to be sold adjoins only one man's holding, it may be given to him without auction, for such an amount as may be deemed reasonable, say three times the annual assessment or the market value, which ever may be higher. Such lands should be given to outsiders only when the owners of neighbouring fields do not want them.

Pre-emption.—The right of pre-emption has become a customary law in Gujarat and some other parts of the country and under it the owner of a house has, after going through certain formalities, the right of purchasing his neighbour's house which is offered for sale on payment of the price agreed upon between the vendor and the vendee or if it is fraudulently pitched too high, such reasonable price as the court may fix. This right of pre-emption may be extended and made applicable to agricultural lands which are less in area than the lowest limit fixed for a survey number. When a *khatedar* wants to sell his field which is below this limit the neighbouring *khatedar* should have the right of pre-emption so that he may get a chance of enlarging his holding. It should be sold to an outsider only after taking the neighbour's first refusal. When there are more neighbours than one, the one who pays the highest price may have it. It need scarcely be said that if the law of pre-emption is made applicable to agricultural land, it should be free from the strict formalities required in regard to dwelling houses.

Comprehensive measures necessary.—Voluntary exchanges, and such other remedial measures for re-uniting divided fields may serve as a palliative and do some good, but a few exchanges of plots, here and there, or the absorption of a few fields into those near them cannot be expected wholly to remove the evil of small and scattered holdings. There must be a comprehensive

measure under which the lands of a whole village may be restripped and set right. Unless that is done, the evil of small and scattered holdings will continue, even though measures have been adopted to arrest further fragmentation.

Re-arrangement on the principle of economic unit.—As regards the re-union of separate fields there are two principles on which consolidation can take place, namely (1) the principle of "economic unit," and (2) the principle of "original ownership." In the first, the value of each holding is first ascertained, and then the original boundaries are removed, roads are marked out, lands required for public purposes are set apart, and the rest of the land is parcelled out into new plots. Each of these new plots must be of such a size, as having regard to the local condition of soil, tillage, and the like to form an economic holding, that is, a parcel of land which allows a man a chance of producing sufficient to support his family in reasonable comfort after paying his necessary expenses. These new plots may be sold by auction among the old occupants, restriction being placed on purchase so as to prevent large blocks of land going into a single hand or to prevent a large number of cultivators from being ousted. The purchase money may then be divided in a certain proportion among the original owners of pieces, a portion being reserved to expenses, which Government would also contribute a share. Another mode would be first to acquire all the land of the village and then to sell it in newly-constituted plots by auction, as is done by City Improvement Trusts or by Governments when laying out new roads in cities or extending a town.

Re-arrangement on the basis of original ownership.—According to the second method, when restripping has been decided upon, a list of *khatedars* and their holdings is made and the latter are valued at their market price by *panchas*. Then the land is re-distributed and each *khatedar* is given new land in proportion to his original holding and as far as possible of the same value, differences in value being adjusted by cash payments. In this method no *khatedar* is deprived of his land. Each is accommodated and in place of his original small and scattered fields gets one plot of their aggregate size.

Second method preferable.—The first method of re-distribution on the principle of economic unit would be an ideal one. But it would lead to the disappearance of the owner whose holding is below the standard fixed for an economic holding. But such a measure is sure to be unpopular in this country where possession of land is so much desired. There would also be difficulties in fixing a proper standard for an economic holding. The second method of re-distribution of land on the principle of "original ownership" would be preferable in this country as under it nobody would lose his land, however small it might be. It takes as its starting principle that nobody is going to be driven off the land. It would give even the smallest holder a chance to better his condition. Under it each landholder receives a new compact piece of land in proportions to the area of his small and scattered fields. In this way the previous sub-divisions together with their attendant evils totally disappear. To ensure that each cultivator gets all kinds of land (*jirayat*, *bagayat* and *kyari*) re-distribution may be carried out for each kind of land.

Questions to be considered and details settled.—There are numerous details which it would be necessary to consider and decide before a working basis is arrived at. In no village are the lands uniform. There are varieties of soils and different stages of culture. There are varieties of land-tenures. The same man may own in the same village different kinds of land such as *sarkari*, *barkhali*, and *chakariat* and there may be pieces of land that cannot be adequately valued or replaced and, therefore, may require exemption from the operation of restripping. There may be mortgage

burdens on some lands. Some lands may have on them the right of permanent tenancy or of easement of others. It would be an arduous task to adjust adequately all these burdens and privileges of the old small and scattered fields on the new consolidated ones. Again, it would be necessary to decide who should make and carry out a plan of re-distribution including such matters as construction of new roads, new fences, transfer of possessions, mutation of records, &c., on the new basis. Then there will arise the question of assessment to be charged on the newly-constituted fields, whether it should be revised or allowed to remain the same. It is also possible that many objections may be raised at every stage of the discussion and difficulties put forward which would require prompt solution. It is impossible to anticipate them and suggest solutions, but there can be no doubt that if the matter is approached with an open mind and with a genuine determination, it would not be difficult to find some *modus operandi*.

Restripping should be a voluntary measure.—In spite of all the advantages, restripping need not be enforced by Government against the wishes of the people. It should be a voluntary measure and should be applied to a village only when a majority of its *khatedars* desire to have it. Even in most of the European countries, the State does not enforce but encourages restripping. It is only when two-thirds of the landholders or the owners of more than half the area of the village land give their consent that the State undertakes the work. This is a wholesome provision and should be adopted in this country also where the majority of the agricultural population is ignorant and apathetic to all innovations. Drastic legislation as would empower Government to adopt compulsory measures for the restripping of holdings requires strong public opinion to support it, and as this does not exist to-day, it would be prudent to wait till it is formed gradually as the result of changing social and economic conditions.

Permissive Act passed by Baroda State.—The Baroda State passed in December, 1920, a Permissive Act for the consolidation of agricultural lands. It cannot be made applicable to a village, except when two-thirds of the number of its total *khatedars*, who are the holders of not less than half of its total land, desire to have it applied to their village. When the act is applied to a village, Government have to appoint a working committee of six members as under:—(1) Naib Suba (Deputy Collector) as President; (2) Survey Kamdar; (3) Taluka Vahivatdar (Mamlatdar), and three members elected by *khatedars*. The working committee is to do its work under the direction and control of a committee of three Land Commissioners who form a permanent board, which consists of the Sar Suba (Revenue Commissioner), the Survey and Settlement Commissioner, and the Director of Agriculture. The working committee is first to prepare a valuation of each *khatedar* existing lands and the trees, wells and buildings thereon. When ready, this is to be published in the *chowra* and if anyone is dissatisfied with the valuation of his property, he has the right of appeal to the Land Commissioners whose decision is final. The next thing to be done by the committee is to prepare a plan of reconstruction, which must be submitted for approval to the Land Commissioners after hearing such objections as may be raised by the *khatedars*. The principle of original ownership being the basis of reconstitution, no *khatedar* is to be deprived of his land. Each one is to get a new whole piece of each kind of land, namely, *jirayat*, *bagayat*, and *kyari*, approximately equal in extent to his previous small and scattered fields. In effecting the reconstruction, care is to be taken that each of the new lots touches at least one road. Mutations in names under the new arrangement are exempt from all charges and taxes. The new lands are to represent old lands. The advantages enjoyed by *barkhali* lands are to continue on the new lands to the same extent and on the same terms as

before. Mortgage burdens on old lands are to be proportionately transferred to new lands allotted in the re-constitution. Assessment is to be adjusted on the lands, and the existing rates of assessment are to continue till a revision survey is made. The expenditure for improving old roads and for opening new ones is to be borne by Government but that for their maintenance is to be borne by local boards. Rules for carrying out the provisions of the Act are yet under consideration and no village has yet applied to make the Act applicable to it. Though restripping is not yet done in any village, the Baroda State is not disheartened. It knows that such a measure takes time to materialise. But the step this State has taken to raise the limit for sub-divisions by amending its Land Revenue Code has begun to bring in its advantages in arresting further fragmentation of existing holdings.

Restripping is a slow work.—The work of consolidation of agricultural holdings is very slow and arduous, as are all really constructive measures. We cannot reconstruct the agricultural industry on an economic basis all at once. There is no short cut by which we can revolutionise the economic condition of a people. It is often a question of details. Austria, Germany, Holland and other European countries which have been trying for over sixty years to consolidate their holdings, have not yet finished their work. If, therefore, after full and mature consideration, Government decide to pass a Permissive Law for restripping of agricultural lands, they will have patiently and steadfastly to adhere to the new policy and see that the people are familiarised with the provisions of the law and the benefits to be obtained from adopting them. The prevention of further sub-divisions is entirely in the hands of Government and can be at once enforced by them by the adoption of the measures suggested in paragraphs 10 to 17. As regards the wholesale restripping of the lands of a village, it will take much time and will come about slowly, first in those places where the people are advanced enough to understand its advantages; but if possible encouragement is given and agitation in the matter kept up, it is sure to be general in all villages in due course of time.

Cost of restripping.—The restripping of agricultural lands is considered a costly affair but it is not really so. The preliminary work is ready, as agricultural lands have been surveyed and assessed. The cost of re-arrangement need not be very heavy. It would hardly exceed 5 per cent. of the value of the properties to be dealt with. It being a novel measure in India and as it is to be undertaken as an experiment, the cost may be borne by the State at the initial stage. Later on, when sufficient experience has been gathered and people appreciate the benefits thereof, the expenses may be shared by the State and the *khatedars* rateably according to the area or value of their fields. To the State it is of the nature of an investment by a prudent landlord to improve his estate. To the farmer, the production must increase and the cost diminish when his small and scattered fields are consolidated as has been the experience of those countries where such measures have been tried.

Advantages to all concerned.—When the great waste now occurring is eliminated by the adoption of the measures suggested, the economic condition of the ryots is sure to improve; famines would be less felt, for even in years of drought, the facility of well irrigation which each holding is sure to have, will enable the farmers to raise irrigated crops. The problem of village sanitation would be reduced in its magnitude. Cattle would in all probability be kept on the farms at least during the busy agricultural season. Many social and moral advantages would also result from the reconstitution of fields. When parents realise that their lands cannot be partitioned out among their sons beyond the economic limit, they would be thrifty and hardworking and would try to obtain new pieces if they have

more sons than one. The son or sons who get only the money value of their shares will have open to them other ways of obtaining their livelihood. They may establish cottage industries which are much allied to agriculture and to which, as agriculturists, they can easily take. They may also migrate to other parts of the country where land is plentiful and only awaits cultivators to take it up. There is no advantage in such agriculturists remaining confined to their native village and thereby making it overcrowded. They would be benefited by migrating to other parts of the country where they could easily get sufficient land to farm economic holdings of their own. It is the attachment for home associations that comes in the way of this, and we cannot have a better means of combating it than the gradual wiping out of small uneconomic holdings.

Agricultural Banking should be introduced.—Along with the consolidation and prevention of sub-divisions of holdings, the State must take adequate measures for the introduction of a thorough system of agricultural banking. No consolidation can take place unless the banks are ready at hand to finance the cultivator. The bank must be willing to redeem the burden on old holdings, to defray expenses of new improvements, and also the cost of the proceedings. The Baroda State had appointed in 1924 a committee to suggest ways and means to start a Land Mortgage Bank to finance farmers for permanent agricultural improvements. The committee's report which is now received is under consideration.

(b) *Why nothing is done by the people.*—The advantages resulting from the fields being large and in one place are understood by a few educated farmers, but the generality of people are not yet prepared to waive their right of actual partition or give up their present small holdings for compact pieces equal to their total area. Some are actuated by the fear that they may lose their present fields of better soil near the village and get instead inferior and distant land. Others are actuated by the false fear that they may lose the little land they possess and would consequently lose their social status. Moreover, internal jealousies and dissensions are so rife in most of the villages that it is not likely that the people will take any initiative for restripping their holdings.

Duty of Government.—But Government cannot afford to be apathetic. It is their duty not to allow the sub-division of land to go unchecked and leave it entirely to the choice of the people to partition their land in any way they like. Government have to see that the utility of land for agriculture is not deteriorated by minute sub-divisions. Plots of land which used, at one time, to be remunerative pieces, economically fit for cultivation, have been reduced to a size which can barely be called a kitchen garden plot. If Government shut their eyes to the ever-increasing minute sub-divisions, agriculture will be more and more unremunerative. Agriculture is India's best and most important industry, and it is Government's duty to see that the present wasteful process of splitting up fields into small dimensions is stopped. To promote scientific agriculture Government have started Agricultural Departments, Colleges and Demonstration Stations, for which lakhs of rupees are being spent every year, but no far-reaching results have yet been achieved or are likely to be achieved so long as the fields remain small and scattered, and steps are not taken to prevent their further fragmentation. Government do not allow agricultural land to be used for non-agricultural purposes without exacting a heavy fine, or charging higher assessment. In so doing it is their object to see that land is not unnecessarily rendered unfit for agriculture. It is, therefore, for Government to take such further steps as may be necessary to assure that the productive capacity of land does not deteriorate and it remains in a fit condition for the object for which it is intended. It is a matter of great satisfaction to know that the Bombay Government have already taken that question in hand and the draft of a Bill on the subject has also been prepared. And

there is no doubt that after the Royal Commission's Report is out, necessary action will be taken by all Provincial Governments on this important matter.

Duty of leaders.—The leaders of the people, members of panchayats, and co-operative societies have also a duty to perform. Of late a good deal of agitation for the advancement of the country is conducted in a variety of ways, good, bad and indifferent. But nowhere in the programme is to be found this subject of preventing fragmentation of agricultural holdings which is of basic importance for the country's good. If they earnestly desire to banish poverty from the country, they should bring home to the ryots the prime cause of their poverty, namely, the ever growing smallness of their holdings which causes so much waste and comes in the way of their reaping the full advantage of their labour. A good deal of propagandist work is required to be done before the people would be fully awakened to a sense of their loss and prepared cordially to co-operate with Government in any beneficent measure that they introduce for checking minute sub-divisions of agricultural land. The evil is admitted by Government, but they hesitate to adopt remedial measures because they are considered inexpedient until strong public opinion is developed in their favour. It is for the leaders of the people to prepare the way for Government by educating public opinion in such a way that it may support the somewhat drastic steps to be taken. As the Hon. Mr. Kamat said in the Bombay Council in 1916: "It is both for the leaders of the people as well as for the Government to join hands or put their heads together and try to find out a solution of this important problem, a solution which will be effective in introducing such measures as will have, in the long run, the effect of counteracting the evil."

(*c*) It does not seem that any special legislation would be necessary to deal with minors and widows with life interest, &c. Re-stripping is for the good of all concerned, and when the State permits it to be done by an Act specially passed for it, all interested in the land are bound to give up their right, title and interest in the land for such money compensation as may be adjudged due to them. The arrangement for the consolidation of holdings is good for the best interest of all, and would be binding on them when done under the special law passed by the State for it.

QUESTION 8.—IRRIGATION.—*Shortage of water in Gujarat.*—(*a*) Gujarat requires new irrigation schemes. It is a province which has fertile land, but wants more water for realizing its full benefit to the cultivator. The existing arrangements for irrigation are insufficient, and in some parts there is actually a scarcity even of drinking water in the summer months every year, and men and cattle have to suffer much distress.

Difficulties in river irrigation.—(i) The Indian Irrigation Commission of 1901-03 had recommended the construction of large canal works from the principal rivers. It is true that these rivers—the Sabarmati, the Mahi, the Narbada and the Tapti—are very deep, thirty feet and upwards below the natural surface of the country. The head works for any canal, including weir and head regulators, would be very costly, and the channels 10 or more miles long would be required before command of the country could be obtained. Moreover, the supplies in these rivers from November to May are so small and precarious that *rabi* and hot weather or perennial crops cannot be irrigated on any extensive scale unless storage works are also made, for which it would be difficult to find and acquire suitable sites owing to intermixed territory of British India and Indian States.

Recommendations of the Irrigation Commission not carried out.—The Commission recommended that a thorough and scientific examination of the head waters of the Sabarmati and Mahi and of those parts of the Satpuras and the Vindhya which feed the tributaries of the Narbada should be made with the object of ascertaining what the possibilities are of storing the head waters of the great rivers of Gujarat and of utilising them for the benefit of

the whole country commanded, whether in the British territory or Indian States. Prospecting for such sites had been begun by His Highness the Gaekwar with the object of storing water for use in his territory. But the efforts of the State in this direction have proved fruitless for want of co-operation from other administrations who are equally interested in the success of these projects. A Sabarmati Canal Project was prepared, but had to be given up, as the Government of Bombay reported in 1919 that it was not in a position to incur the expenditure involved in the investigation and the completion of a detailed project. A fresh reference was made in 1921 with the result that the Resident at Baroda informed the Minister that the Bombay Government did not consider that they could take up the project for some time to come. The Commission may do well to enquire what further steps have been taken, and to see that the proposals of the Irrigation Commission are carried out without any further delay.

Baroda Government's efforts.—It is not that there are no other rivers, but for the most part they are small and hardly contain any water which in summer could be utilised for irrigation purposes. *Bandharas* or weirs thrown across such rivers would store up water, which can be led by channels to irrigate the fields. The Alidhar Vallan *bund* near Harmadia, the Natalia *bund* near Dhari, and the Chikli and Tichakia *bund* in Vyara may be mentioned as instances of such a form of irrigation in the Baroda State. There is still great room for the increase of such *bunds*, and the State would do well to build wherever possible.

Tanks.—(ii) Small irrigation works are met with all over the State, especially what are called "paddy tanks," to protect the rice crop, by giving it water during a break in the rains and more especially giving it the last one or two waterings necessary to bring it to maturity after the rains. The number of such tanks in each Division or Taluka varies with the nature of the staple crops, the soil, and the intelligence, skill and capacity of the cultivators. Several irrigation tanks have been constructed by the Baroda State with small distributing channels such as Kadarpur, Thol, Khokhala, Piplana, Santej, Vagas and Tharrod, in the Kadi District; Vadhwana, Karachia, Raval, Harripura, Dhanora, Muval, Manorpura, in the Baroda District; Thebi, Kumbhanath, Dhamel, Pichhavi, and Bhimgaja, in the Amreli District; and Dosawada, Chikhali and Zankhari in the Navsari District. But they have not been found to be useful in a year of deficient rainfall, when their help is most required for irrigation purposes.

Wells.—(iii) The chief source of irrigation is by means of wells, from which water is raised by means of water-bags for irrigation crops other than those grown in the monsoon. The sinking of new wells is encouraged by the State under a liberal system of *taccavi* advances, and their number is increasing from year to year. More recently oil engines and pumps have been introduced, and are becoming increasingly popular. The water-bags in use are of two kinds, *ramia kos* and *sundhia kos*. The *ramia kos*, consisting of a large leather bag containing 16 to 20 gallons of water, is drawn by a pair of bullocks which run down a steep incline and thus raise the *kos* out of the well. Two men assist in the work, of whom one, sitting on the rope which pulls up the bag, urges the cattle down the slope, while the other, when the bag has been raised to the mouth of the well, empties it into a trough or reservoir. The *sundhia kos* is worked single handed. It is so contrived that it admits of the bag emptying itself into the trough, and of its re-descending on the return of the bullocks up the incline automatically.

The Persian wheel.—The Persian wheel, *rahat*, which has a number of jars attached in such a way that a revolution fills some with water while it empties the rest into a trough, is also sometimes used for shallow wells.

Size and cost of wells.—Wells are of various sizes. The largest, which are to be seen in the Baroda and Kadi Districts, permit of water being drawn

by no less than 12 *kos* at once. In the Amreli District *katcha* wells, which cost from Rs.50 to Rs.500, are generally made by simply digging holes in the ground. Elsewhere, owing to the sandy nature of the ground, *katcha* or *pacca* wells of masonry have to be built costing Rs. 1,000 to Rs.3,000. In the Kadi District there are many *katcha* wells.

Difficulties in the way of well irrigation.—The drawback in the wider application of well irrigation is the danger of striking no water or unsuitable water, for when that happens all the expenditure for a productive purpose becomes unproductive and continues to be a dead weight on the farmer's business. A much wider use of Government *taccavi* would be made if the farmer could be protected, if not wholly at least partially, against this risk of not striking water, as often happens in rocky strata, or striking unsuitable water, as often happens in the alluvial tracts. Another reason why more wells are not constructed is that the individual farmer's fields are small and scattered; a good well can irrigate about 15 to 20 acres of land, and unless a field becomes of that size it does not pay to dig a well.

Profitable distribution of water.—(*b*) The distribution of canal water being vested in our State in a semi-official body, opportunities for complaint are reduced to the minimum. The question of economy in application, however, has not been given as much attention by the farmer as the matter deserves. He pays not for the volume of water used, but a lump sum for the area he irrigates, and, therefore, sometimes uses more water than he should and suffers in consequence in his produce, and makes others suffer owing to water not being available in time for their crops. Regulating of water distribution by a committee of local leaders interested in the well being of all the farmers may possibly serve as a remedy as it has done in this State.

QUESTION 9.—SOILS.—*Physical improvement difficult.*—(*a*) Soil quality can easily be temporarily improved by (1) rotation, (2) green manuring, (3) commercial fertilizers and (4) stable manure. But improvement of soils in a physical sense is difficult to accomplish. There are, however, some physical conditions influencing soils in a tract which are capable of improvement.

Drainage.—(1) The flooding of certain areas during rains may be taken as an instance. The provision of suitable drains have made hundreds of acres tillable in our Baroda and Kadi districts, which otherwise would not have been so.

Reclamation of alkali lands.—(2) The reclamation of alkali lands is difficult to accomplish: It stipulates certain conditions of water facilities and sub-soil drainage which are not easily co-existent. Attempts made by the State to reclaim *khar* lands on the sea coast in the Navsari District and in the Harij Peta Mahal have not, so far, been successful and had to be abandoned. Persistent efforts were required to wash off the *khar*, but had to be abandoned on the ground of extra cost involved. Land values must rise much higher before these areas could be profitably reclaimed.

Erosion.—(3) The erosion of soils by flood water or during rains is a problem which should be given special attention in residual soils in a tract naturally uneven. Most of the soils are not usually deep, and if erosion is not prevented in time, the soils once productive may easily lose fertility by this annual washing away of the best soil material.

No marked improvement.—(*b*) It is difficult to quote instances of tracts where the soils have definitely improved, although tracts may be mentioned which have gained in agricultural prosperity which it may not have had before. After the provision of drains, the soils in the Kadi district have considerably improved. But under the recent conditions of decreasing rainfall, a feeling is gaining ground that the drains are doing a disservice by carrying away water, part of which, if not all, would have remained in the soil.

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Change of climatic conditions such as more or less rain have rendered many parts more or less profitable. The settlement of good farmers in some areas may also often result in better soil productivity, but these are instances of the effect of changed environments on soils. They are not changes in the inherent nature of the soil.

Reclamation of cultivable lands.—(c) For the reclamation of areas of cultivable land which have gone out of cultivation, the causes which led to such a result must be found out and removed. This would require time, capital and efficient farmers. If Government arrange to provide these, the reclamation of these areas may be easily taken up. For permanent reclamation, however, we must await a natural call on these resources so that the demand should come from the people.

QUESTION 10.—FERTILISERS.—*Sann as manure for cotton crop.* (a) A greater use can be profitably made of both natural manures and artificial fertilizers. There is a great deal of indifference to manuring land in this country, especially for extensive crop cultivation like cotton. The high prices of cotton and the comparative ease with which large areas could be put under it has brought about continous cropping of cotton in many fields with the result of low yield. Observing farmers have seen this. They have also realised the impossibility of adequately manuring cotton fields with farm yard manure. They could not forego the easy money coming out of cotton cultivation with less trouble, and, therefore, recourse was had to the use of growing *sann* in between the rows of cotton, which was then cut and allowed to decompose in the soil. This practice has been steadily gaining ground where cotton is continuously cropped, and where the farmers are intelligent enough to realize the advantages of this measure. Such has been the ameliorative effect of adding organic matter and nitrogenous material on cotton in parts where it is practised that some farmers now use it even for *juar*. This is a matter of fertilizing the fields which require but little out-of-pocket expenditure from the farmer and deserves to be given a trial in places where large areas are usually put under the same crop.

Artificial manures suitable for irrigation crops.—The subject of artificial fertilisers is, however, on a different footing. It entails considerable initial out-of-pocket expenditure on the part of the farmer, and in a rising market had a place. For cotton manuring, with prices going down day by day, the outlook seems to have changed. Again in case of artificial manures, a double set of varying factors come in. One is the cost of the artificial manure and the other is the selling price of the crop grown. Results which may be profitable under a given price of manure and crop may not hold true if either the price of manure goes high or the price of the produce goes down even if the price of the fertilizer remains the same. In carrying on tests with artificial manures, this fact should be borne in mind when laying out tests. The necessity of out-of-pocket expenditure in purchasing artificial manures restricts their use for expensive crops only under dependable rainfall. Conditions of uncertainty regarding this would involve the farmer in a loss which he can ill-afford to undergo. For this reason, the field for artificial manure is open in all irrigated crops and for extensive cultivation under certainty of seasonal rainfall.

Legislation necessary to prevent fraud.—(b) There are at present in India no laws to prevent a dealer from selling as a fertilizer anything that he may choose so to describe. Nor are there any legal standards or percentages of error in description. As proposed by the Indian Industrial Commission in their Report, para. 220, an act on the lines of the British Fertilizers Feeding Stuffs Act of 1906, should be introduced into India and sellers compelled to describe and certify their wares. Such an Act should also empower the Board of Agriculture to fix percentages of error for certain ingredients of both feeding stuff and fertilizers.

Free supply to farmers for experiment.—(c) The good results to be achieved by the use of new and improved fertilizers should be proved to the satisfaction of the agriculturists by a free supply for use on his field. A portion of the field may be manured in the farmer's ordinary way and another portion of the same size in the same field should be manured by fertilizers and the result in the yield of the crop compared. The farmer will be given to understand that if there is loss in yield it would be made up by the Department of Agriculture, and if there is more yield he will be allowed to retain it for himself. Such a condition would induce him to use the new fertilizer, and both he and his neighbours would take to it, if he is satisfied that its use would give better results. Commercial crops requiring heavy outlay for manure should be chosen for this test.

Ammonia sulphate and bone-meal.—(d) Ammonia sulphate is being largely used with good results in the Vyara taluka of the Navsari district, where sugarcane is largely cultivated on account of the irrigation facilities afforded by His Highness' Government. Commercial crops under irrigation are best suited for the use of these manures. The use of bone-meal for general farming, and fruit trees in particular, seems to be also on increase. There is a good factory for preparing bone-meal in Nadiad, district Kaira.

Potash manures not well received.—(e) No such fundamental investigation has been made of a systematic nature, and it is to the lack of this that reference is made in the Question on Research. Potash manures, however, have failed to give the response expected of them and the few tests that were carried out in its use by the State-Agricultural Department.

Supply of cheap firewood necessary to prevent cow-dung being used.—(f) Increase in the supply of cheap firewood seems to be the only way of discouraging the practice of using cow-dung as fuel. Cow-dung is so handy and so very convenient for purposes of ready inflammability, slow burning, and control of heating that it would be difficult to dispense with its use until the farmer is educated enough to understand that it is to his advantage to put a stop to this practice.

QUESTION 11.—CROPS.—*A programme of research work in provinces necessary for local crops.*—(a) (1) The country having various combinations of climate, altitude and rainfall, the variety of crops grown by the farmer is almost beyond enumeration. Research work has so far been done with regard to very few of them, and that too had only restricted application. A good deal of research work has already been done for cotton, wheat, tobacco and sugarcane. But with regard to other crops like rice, *bajri*, *juar*, various oil-seeds like sesamum, castor, rape-seed and ground-nut do not seem to have pursued with the same zeal. It is right that commercial crops should engage first attention, but the disregard of other equally important crops has resulted in lack of general response from the farmer which otherwise the Department may have secured. This is not saying that no work in these crops has been undertaken. Rice in Bengal and Bombay and ground-nut in Madras have received some attention, but it has lacked the same careful and systematic investigation by a definite programme as has been the case with regard to commercial crops like cotton, wheat, tobacco and sugarcane. Out of these crops, wheat and tobacco work has largely been done at Pusa; but a provincial research programme will permit considerable attention to other crops as well and will popularize the work in a greater degree than is the case to-day.

Introduction of new crops.—(2) Efforts to introduce new crops by the distribution of seeds have been made from time to time in a desultory way and in some parts with success. In the work of the Agricultural Department this branch holds out well-grounded hopes of exclusive and substantial improvements, but it is a work which demands special experience and can only be successfully carried out in conjunction with experimental stations. There

are two fields of operations (1) the improvement of crops by the selection of the best-developed seeds and (2) the hybridising of such a crop as wheat. By these practices the size and quality of the grain can be wonderfully enlarged and the yield of crop increased.

Attempts to improve crop by better seed from foreign countries and replacing the existing varieties have not achieved as much success as the application of modern methods of selection and hybridization to the mixed crops now grown. Owing to the variety of environment met with in this country, the natural range of crops and their adaptation to surroundings is almost unlimited. Under these circumstances, it may not be necessary to introduce new crops from outside, i.e., from foreign countries. The value of such trials, both inter-provincial and foreign, is, however, unquestioned and should be kept up.

Distribution of seeds.—(3) The Indian farmer understands the good results to be achieved from the use of good seeds. He generally selects the best ears from his field, and preserves them for seed. He takes out the best grain from these ears and uses them as seed. But a greater number of farmers are too poor to have seeds selected and preserved. The generality of them use such seed as they get from the Bania, and the result is that their product is not of an uniform grade, and they suffer loss also on account of some of the seeds not germinating. On account of the poor quality of seed that usually goes in the soil the produce suffers at least 25 per cent. in efficiency on that count alone. Under the present circumstances there is no chance of seedmen's business coming into existence on a large scale, as owing to the poverty of the people the sales would be unremunerative. Supply of good seeds by Government cannot be continued indefinitely. The most suitable agency for seed distribution would seem to be the co-operative societies, which have a fairly good distribution in the country-side, and if they undertake the service they would be rendering assistance at one of the weakest points in the farmers' struggle for getting good crops out of his holding. The society can collect good seeds from its members and can also import them from outside at the cheapest cost in bulk, and would thus be in a position to sell them cheaply. Some societies have already begun this work, and under good leaders and encouragement of the Agricultural and Co-operative Departments excellent work at the initial stage can be done by more societies.

Damage by stray cattle and wild animals.—(4) The damage by animals is not restricted to wild animals alone in this country. Stray cattle, with and without owners, do immense damage to crops in addition to that done by wild animals. Pigs, monkeys, deer, jackals, rats, &c., are the greatest enemies of the farmer. In Gujarat he is averse to shooting them, for in so doing his religious sentiment comes in his way. He simply makes frantic efforts to drive them away by passing sleepless nights and shouting or throwing stones at them. As regards stray cattle, cows and bulls let loose by the owners are the worst enemies of the cultivator. The cow, though considered sacred, is not cared for by persons of non-agricultural classes such as Brahmins, Banias, &c., living in towns and even villages. They keep it for its milk but do not feed it at home; and is let loose to find its food by straying into fields, and is a nuisance to the countryside. A still greater culprit is the *rabari*, or professional breeder, who without owning an inch of agricultural land keeps a large number of cows and moves about the fields with his herd for grazing them. Immense loss is caused to the farmer not only by the *rabaris'* and the Brahmins' cows, but also by bulls which roam about the country as *res nullius*, and are a nuisance both in the streets and the fields. There is a custom in Gujarat to let loose bulls for the sake of the merit the act is supposed to bestow on the person who does so. These mongrel kind of bulls not only do damage to the farmers' crops, but also spoil the breed of the cattle. It is not only necessary to castrate them for rendering them harmless, but also to destroy them as a public nuisance. Stringent laws are necessary in Gujarat to prevent damage to crop by stray cattle. The present

provisions of law to take them to the village cattle pound is not sufficient. It is difficult to catch stray cattle and lead them to the pound. They are so trained that as soon as they find that efforts are being made to catch them they hastily run away, and a hedge of six feet height is no barrier to them. Some times free fights take place between farmers trying to catch stray cattle and their owner, especially the *rabari*, trying to obstruct the process. Complaints and cross-complaints resulting in heavy law expenses are common. Fractured limbs and even deaths result from such fights and ruin a farmer's family. More deterrent measures are necessary. I, therefore, suggest that not merely fines but rigorous imprisonment should be provided in law for those who let loose their cattle, and that whenever a cattle is found without being in charge of its owner it must be taken for granted that he must have done so with the object of causing damage to another's property, and heavy punishment should be inflicted.

Wire-fencing seems to be the only way of protecting crops from the ravages of wild animals. The average cultivator is too poor to have money for it, but if he gets *taccavi* loan for the purpose he would be able to repay it by easy instalments from the saving of the loss secured by such fencing. The agricultural department in our State has, after the Poona Exhibition commenced demonstrations of the benefits of strong wire-fencing such as was exhibited there; and it is hoped that when the present small and scattered holdings are consolidated it would be possible to provide such fencing.

(*b*) It would be difficult to replace crops on which the domestic economy of the farmer is based without regard to his needs. But it is a field of research which, as mentioned elsewhere, is still almost unexplored and is replete with opportunities for service in that direction.

Substitution of more profitable crops.—(*c*) With the exception of wheat and cotton, so little persistent work has been done in other crops of provincial importance that it is difficult to cite instances. Pusa wheat in Kadi District, early *kolam* in Navsari and tobacco in Baroda may, however, provide instances of the effort receiving fair response.

QUESTION 12.—CULTIVATION.—*The existing system of tillage.*—(1) The question of tillage is ultimately connected with the implements for the several tillage operations. There is little evidence to show that the existing system of tillage could be easily improved upon, at least in parts where agriculture has become an established art. There may be parts here and there as in the Punjab where the only tillage operation is seeding and the only implement known is the plough; but in parts like Gujarat, for instance, where agriculture has had time to settle down and become systematised, a cultural system has resulted which it will be very difficult to change. We may be able to do the operation better on account of a better choice of implements, but the operation as such will be already found to have a place in the cultural system. In such parts, therefore, it is a question of the choice of suitable implements for doing a particular tillage operation better. It must once more be stated, however, that investigations in the economy of this substitution or improvement in the present system has not been given the attention it should have had, if the matter is to be pressed forward amongst farmers.

Deep ploughing.—As an illustration may be taken the following instance. Deep ploughing should usually give better yields than shallow cultivation, as it results in better water supply. The comparative tests may show that the out-turn has increased, but if the increase is not in proportion to the expenditure involved in the operation, the chances of its being accepted as an ordinary farm practice are remote.

Use of iron ploughs.—In the Deccan, the iron plough now ploughing has been a substitute for the old wooden plough, as it offered distinct economy over the current practice of ploughing with the wooden plough with not less

than at least three pairs. The iron plough is an implement which, in addition to better work on account of the design of the plough, also brings about economy in operation since one less pair is needed. These are the factors which have opened a fruitful field of propaganda for the department in the Deccan. Conditions, however, are not the same everywhere else. In Gujarat, for instance, hot weather ploughing is rather the exception than the rule. Except for the iron plough in some parts, few implements have taken a firm hold in the system of farming practised by the farmers.

Rotations and mixtures of crops.—(II) Rotation of crops are somewhat more regularly followed in black soils, but even there the principal crops often have a subsidiary mixture. In *gorat* soil tracts this system is not so strictly followed, and the aim is partly served by a mixture of several primary and secondary crops. *Bajri*, *math*, *til*, *ambadi*, or *kodra*, *tur*, cotton, or *bawta*, castor and *wal*, *juar*, *mag*, *chola*, and *gawar*, cotton and castor provide some of the familiar mixtures which may occupy the same piece year after year according to the experience or inclination of the farmer. Some effort at separating the mixtures and making suitable rotations out of them was made, but without striking results of any importance.

QUESTION 13.—CROP PROTECTION, INTERNAL AND EXTERNAL.—*No danger of importation of pests.*—(I) The Government of India is fully alive to the danger of introduction of new crop pests from the outside, as will be evident from the necessary restrictions imposed. There seems, therefore, little cause for anxiety on this score, as the Government have, it is understood, already imposed restrictions on the introduction of new crops likely to bring the pest from outside.

Desirability of restrictions for internal infection.—(II) The question of guarding against internal infection is more difficult of accomplishment, even if agricultural opinion could be so enlightened as to feel its need. The Pest Act made applicable to arecanut and Cambodia cotton is the only instance of such a measure so far, but it is best to be prepared for an imposition of such restrictions if that would offer the only way of checking a disease or pest.

QUESTION 14.—IMPLEMENTS.—*Tools in use.*—(*a*) The agricultural tools and implements used in the different parts of Gujarat, including the Baroda State, are simple in construction. They are made of Babul (*Acacia Arabica*) wood by the ordinary village carpenter at a small cost, and can be easily repaired. The following are those in general use:—

Tools.

Datardu, sickle, used in harvesting and cutting grass, &c.

Khurpi, used in weeding.

Kodali, spade, and *pavado*, shovel, used in digging.

Kuhadi, axe, generally in cutting wood.

Dantali, rake (generally six toothed) used in stirring while threshing.

Khori, rake (allied to *dantali*, but with teeth closer and broader) used in spreading manure.

Jinsli (three or four toothed), used in lining for planting tobacco and chillies in squares.

Implements.

Hal, light plough, used generally in the monsoon. Average work done with this is one *bigha* a day.

Nagar, a heavy plough, used in planting whole canes in Navsari. *Hal* does not cut, but scratches the surface and forms an arrow-shaped furrow, varying from 5 to 7 inches in depth in the monsoon, while in the summer it only scratches the surface.

Karab, or *ramp*, harrow with a horizontal blade, 30 inches to 40 inches in length, used in summer in black soils, and in the monsoon in all soils of preparatory tillage.

Dantal, harrow (six wooden coultered), used in hoeing [illegible] as well as in stirring after ploughing.

Ghanio, used in puddling in *kiaris* in the Navsari District.

Seed-drill, used in sowing. It goes under different names in different tracts: *Fadko* (two coultered) in Navsari; *karfen* (three coultered) in Baroda; and *chawal* (four and some times five coultered) in Kadi. There are holes in the coulters on which are placed the bamboo tubes which supports the seed-bowl (*orani*).

Orani is a bamboo tube tied with a leather strap to the plough, *hal*, for sowing castors, groundnuts, and such other large seeds.

Rampadi or *karabdi*, bullock-hoe, is similar to *karab*, blade harrow, but differs from it in size. It is made of various sizes to suit different crops, such as cereals, tobacco, and chillies. It stirs the surface and destroys the weeds. Two, and sometimes three of them, are yoked at a time.

Samar is used in covering seeds as well as in levelling the soil after ploughing.

These tools and implements are suitable for the small and scattered holdings. Iron ploughs have been purchased by some cultivators, but experience has shown that it is difficult to carry them from field to field.

Improvements necessary.—Speaking generally, it may be said that there is no hope of introducing larger or better implements until the cattle are better fed and consequently stronger, and until the small and scattered fields of the farmer have been consolidated into one large farm. There is ample scope for improvement in the indigenous implements. Their efficiency could be increased by slight improvements in their make. This investigation is very important, and I would place it in the forefront of the Agricultural Department's activities.

Steps necessary for the adoption of improved implements.—(*b*) The most important step to be taken to hasten the adoption by the cultivator of improved implements is the consolidation of holdings. With the growth of industries and the development of education, supply of agricultural labour has decreased. Wages have increased, and even then it has been found difficult to get a sufficient number of men. Shortage of labour has created a demand for such implements as oil engines and pumps, and a number of them have been installed in place of bullock-driven *kos* for well irrigation. The boring of wells is also increasing. In the absence of an agency to render professional advice, it has several times been found that the cultivators set up engines of the wrong type and at places that are not suitable. The employment of a qualified full-time engineer to advise cultivators regarding the type most suitable would lead to a greater use of these oil engines and pumps. Propaganda by undertaking tests on the farmer's field would go a great way to convince him about the utility of improved implements.

Manufacturers should study local conditions.—(*c*) Manufacturers are unable, in the absence of knowledge of the local conditions of soil, size of farm, &c., to manufacture the type of implements that would be most suitable and lead to successful results. This difficulty would be removed if either through their own agents or with the help of Government they become acquainted with the local conditions in which implements manufactured by them are to be used.

Practical demonstrations.—To enable agriculturists to see for themselves the advantages of improved implements, various measures are taken in the Baroda State from time to time. Agricultural shows are held, and the

benefit of improved implements are practically demonstrated at different places. Moving agricultural demonstrations are held from time to time since 1914. A railway waggon is hired at concession rates on condition that it should be detached at each station of the district situated on the line and allowed to be detained for 24 hours. This interval is used in arranging in the form of an exhibition the implements, samples of seed, &c., with which the waggon is loaded. Lectures are given by Revenue Officers and by Inspectors of the Agricultural Department, and the practical use of improved implements is demonstrated in the nearest fields. Hundreds of cultivators from the neighbouring villages, to whom intimation of the time and date of the arrival of the waggon is previously given, come and benefit by the show. Extra implements, such as Meston, Hindustan, and other ploughs, are kept in stock and sold on the spot at half the cost price to those who want to purchase them.

PART III.

QUESTION 15.—VETERINARY.—*Control.*—(*a*) The Civil Veterinary Department should be under the control of the Director of Agriculture for best results, and should not be independent.

Finance.—(*b*) (i) The Veterinary Dispensaries in Baroda State are financed half to half by Government and Local Boards, but the management is vested in the latter, which makes arrangements for payments. This innovation, however, has only recently been made, and the management is not getting along as smoothly as when it was with the Government Department, which could transfer veterinary surgeons and *salutries* when necessary from one place or district to another, but under the Local Boards they have become fixtures in one place; and even when desired by the department, the Boards do not agree to the transfer.

Shortage of men.—(ii) The expansion of veterinary dispensaries is going on apace. Well qualified Veterinary Surgeons are not, however, available in as good numbers as is desirable.

Controlling authority.—(iii) In an Indian State such a question has no place, but in British India it would seem that the right place for the control of the department is with the Provincial Authority.

Fair use made of dispensaries.—(*c*) (i) A fair use is made within five miles of the dispensary, when the owner of the cattle has simply to show the patient and to take medicine for it; very little use is made of veterinary dispensaries for operations, as they necessitate the stay of the owner or his man at the place of the dispensary. If living accommodation is provided, greater use could be made of the dispensaries.

Touring dispensaries not very successful.—(ii) It is a question whether full relief is made available by touring dispensaries, but if a permanent location would fail to attract enough cases, it is the next best way of arousing interest and giving necessary relief.

Opposition to restrictions.—(*d*) The main obstacle is that the agriculturist does not understand all that a contagion brings in. It seems he would rather put up with his losses due to the epidemic than have any restrictions placed on him. He has such a simple inborn faith in fate. The recommendations of the Veterinary Surgeons in the disposal of carcasses of animals that are victims of the epidemic appear always mystifying to him and are not likely to be taken very kindly by him until the value of farm animals increases so much that it becomes a matter of some real concern to him. Legislation in this matter for the present would be most unpopular, and education alone must be the main spring of the results to be obtained. Preventive inoculations may be pushed forward, if possible by talukas, so

as to deal with all the animals in a particular tract. There seems to be no other way for the present out of the difficulty.

Serum available.—(*e*) No serious delay or difficulty is experienced in securing the necessary serum.

Prejudice against treatment.—(*f*) There is no particular objection, except that the people do not seem to have faith in the remedy and it is not always near at hand, and by the time help reaches the place the disease has had its course of evil. It is also considered more or interference in many places, and reports of outbreaks are often suppressed.

No fee is charged in this State. Few farmers would consent to pay any fee or charge for serum or service which he considers to be an infliction on his animal. It takes a forceful person even to persuade them to submit their animals to the treatment.

Rinderpest and hæmorrhagic septicemia.—(*g*) Two diseases which bring on great loss are rinderpest and hæmorrhagic septicemia, and research in the further study of these is very desirable. But it would seem that it will be best to leave this matter in the hands of the Government of India instead of the Provinces. Provincial Veterinary Research Institutions seem to be hardly necessary considering the All-India nature of the diseases to be treated.

(*h*) Since Muktesar has already specialised in this direction it is best to leave the problem to it for solution.

Superior veterinary officer not needed.—(*i*) There seems to be no special need for a superior Veterinary Officer with the Government of India, as there is no function which he has to discharge, all the advice being imparted by the Agricultural Adviser in consultation with the research staff in matters needing expert advice. On purely administrative matters he himself is quite competent to advise.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) (i) *No purity of breed.*—In Gujarat *rabaris* are the professional cattle-breeders. But as they are landless and have to depend upon such grazing as they can find on the village common or in the cultivator's fields, their stock is generally poor. For their own cattle-breeding, the cultivators depend upon the village bulls and buffaloes which are not selected with proper regard to the purity of their breed. They are also not stalled, but allowed to roam about and graze in the village fields and their service is not properly regulated. The result is that in Gujarat to-day few breeds are in a state of purity. There is the usual hall-mark on the animals in a tract in which a breed may predominate, such as Gir buffalo, Kankrej bullock, Vadhiari cow and so on, but few animals are really of pure breed on both sides. It is, therefore, a subject to which earliest attention should be given and immediate steps taken to preserve that degree of purity at least which we see in the best specimens of the breed, and then to enlarge it, so that the purity of the breed may ultimately be restored.

Government should provide sires for breeding.—Provision of the best sires by the agricultural department and Local Boards would seem to be the best way of improving the breed, till the people begin to understand the value of pedigree on both sides. But provision of best sires cannot be had by mere recommendations, or looking about for suitable animals. It is a matter in which the best results depend on performance alone and none but Government can afford to make the preliminary study for having a strain of cattle with pronounced desirable qualities. In the Baroda State, a cattle-breeding station has been opened at Makarpura near Baroda and bulls and buffaloes for the use of the cultivators are supplied to the Local Boards, on their undertaking to maintain them and to regulate service.

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Zamindars and big land-holders take no interest in this important matter for the prosperity of the cultivator, and should be encouraged to take it by bestowals of honour on those who do good work in this line.

Social customs and religious sentiments.—Mere provision of good sires will not encourage to get a quick effect on the cattle. Many popular prejudices and superstitions would also have to be removed. It is considered undignified to use male buffaloes for agricultural purposes. Only Bhils, Kolis, Vagharis, and such other low caste cultivators use them in Gujarat for drawing their ploughs or carts. Kunbis and other high caste cultivators rear she-buffaloes but he-buffaloes are not cared for. They are allowed to die or are made over to the local *pinjrapole*. Castration is considered a sin and is not; therefore, performed by cultivators except indirectly through Rabaris and Vagharis.

Mischief by stray bulls.—The pernicious habit of letting loose bulls for the purpose of earning religious merit has led to a large number of bulls of mongrel breed parading in the country and are a nuisance, which must be removed by legislation. The bulls thus let loose are responsible for the deterioration of the best breeds and unless these prejudices and practices are given up or at least such roaming bulls are castrated and rendered innocuous, a real beginning at breed improvement *en masse* can be hardly made.

(ii) Dairying is a subsidiary industry followed by almost all farmers in Gujarat. Almost every farmer keeps one or more buffaloes, but very few keep cows. The milk is made into *ghee* by each one in his own home. In the vicinity of towns, milk is sold either direct to the customers or to Ghanchis or other middle men. In some big villages cream-separators have been installed by firms from Bombay and Ahmedabad. The cream is separated from the milk and exported to Bombay or Ahmedabad where it is turned into butter. The separated milk is used for making curds, feeding cattle, or taken to Anand where it is turned into casein. The installation of cream-separators is not viewed with favour by the general public on the grounds that it lessens the local milk and *ghee* supply and thereby makes these articles dearer. But from the farmer's point of view the installation of cream-separators in their villages has been a blessing and brings them that cash which they require. Co-operative creameries have not yet been started, but if they are established they would benefit the farmer more than what the merchants' creameries do at present. Business considerations have not yet entered into the farmer's milk production. He does not keep an account of the feeding charges of his milch cattle and their yield of milk with a view to ascertain what return they give him. Until this is done and the proper kind of cattle are discarded and better attention paid to develop milking qualities by selection in breeding it is not likely that the dairy industry as it is will show any improvement. The farmer has yet to understand that it is not more cattle but better cattle that he requires, and that considerable wastage of fodder would be reduced if only good cows and buffaloes were kept.

(iii) *Systematic breeding will pay.*—There is a better field for improving existing practices of animal husbandry by keeping records of animals which pay the best and by provision of good succulent fodder or silage to milch cattle specially. The breeding is perfectly haphazard and if improved superior sires are available their value must be brought to the notice of professional farmers. There is thus, far better scope for improvement under this heading than in the dairy industry.

(*b*) (i) *Gauchars necessary.*—Some people think that the village commons *gauchars* are undesirable and

(1) So long as they exist, there is no chance of any improvement in cattle;

(2) That they do not provide any grazing and interfere in making the farmers thoroughly self-reliant regarding provision of fodder for his cattle and indicating to him the responsibility he must take if his animals are to be well cared for; and

(3) That the existence of the village common provides a common meeting ground for cattle by which means an epidemic spreads over the whole village within a short time and makes it impossible to take any effective measure of a prophylactic nature. There is some truth in these objections but it would not be proper to do away with the village common. As it is, it does afford grazing to some extent and can be made more useful if the villagers kept it in proper order by removing useless shrubs. If there were no *gauchars* many people who have no farms of their own would find it difficult to take out their cattle even for exercise. Good farmers do not depend solely upon the village common for the grazing of their cattle. Grass boundaries are often kept in the fields and in their absence separate fields are maintained for pasture by careful farmers.

(*b*) (i, iii) *Fodder storage.*—In normal years fodder for cattle consists of green grass from the boundaries of the fields and weedings from July to October, and of green pulses grown in the fields later on till December. The stalks of *bajri* and *juar* together with fodder of pulse crop are used in the dry season. In bad years, when there is scarcity of fodder, leaves of *nimb*, *shami*, *rayan*, *bordi*, *mahuda*, *pimpal*, *kothi*, *amli*, and such other trees are used instead. The poorer class of cultivators is always short of fodder in summer, having to supplement his resources with leaves. Good cultivators are in the habit of growing *sundhia* fodder in the summer where there is water for its irrigation. The stacking of fodder for emergency years has not yet become an established practice. It is used in a wasteful manner in good years when fodder is plentiful. In the Kadi district where there is a good deal of *juar* growing, the practice of stacking is prevalent to a large extent and is of great benefit in bad seasons. The practice of stacking grass is decreasing from year to year owing to the dread of incendiaries whose number is large in every village, and who do not scruple to burn down grass stacks, called *salas*, in revenge for grievances however trifling. The problem of fodder reserve has lately engaged the attention of His Highness' Government, owing to successive bad seasons causing a deficit of fodder, and consequent heavy mortality amongst cattle. A committee was appointed in 1918 to report on the best means of grass conservation. Its recommendations have been approved in theory, but few of them have found public acceptance in actual practice. Co-operative societies are now being specially organised with the object of creating grass reserves.

(iv) *Ensilage has failed.*—Absence of green or succulent cooling fodder in dry seasons of course, tells on the well-being of cattle, but pronouncedly so in the case of milch stock. Somehow the system of ensilage has failed to appeal to Indian farmers at least so far. One reason for this may be the fact that in India, the crops grown are usually for a double purpose. The seed supplies the grain for the farmer and stalks the fodder for the cattle. It is obvious that in ensiling, grain has to be sacrificed and few farmers feel to be in a position to lose the grain and the area they usually farm is too small to permit special fodder crops alone being grown. There is besides the mode of residence in congregation which adds another difficulty to storage as the fields may not only be far apart from each other but even far from his place of residence in the village.

(v) *Varieties of fodder used.*—Bullocks employed in heavy work are fed on hay, millet stalks, and *guwar*. Cotton seed is given to buffaloes to increase the supply of milk specially meant for production of *ghi*. Grass is generally abundant in all parts of the State during the monsoon and

in the cold season. When grass fails in a famine year it is imported by rail from the State jungles, and from other parts of the country, and there is now less fear of great losses of cattle, than in pre-railway days.

(c) *Season when shortage is experienced.*—May, June and July are the months when fodder scarcity is most experienced. The last six weeks prior to normal season of rain experience the pinch in a marked manner in ordinary years and it increases in intensity and volume, if the season for any reason is late. Young growing cattle can only begin to fare well after at least 8 weeks or so have elapsed after good rain when good grazing is available all round and young stock can fill to their content.

(d) Growing of leguminous fodders which give several cuttings is one of the best things for this. Lucerne is being grown to a large extent in parts where irrigation is available.

(e) *Improvements in methods of storing.*—In good seasons, more fodder is produced than is needed for current use and if this could be secured against loss by fire, this supply would come very handy in seasons of shortage. But most of the fodder so supplied is in the form of *kadbi*, which besides being bulky, cannot well be pressed unless it is shredded and baled. Tests of this kind, and the durability of the fodder so stored should also be investigated. Another way of using this *kadbi* is by chaffing the stalks and then storing it. But the relation of the storage charges to the price prevalent in short seasons must be determined to work out the economics of the process. The usual method of storing in heaps had it not been subject to the danger of fire would not be as bad, but its efficiency of keeping, of course, is very poor, as quite a good deal of the exposed fodder becomes useless. But the subject deserves to be better studied instead of these mere generalisations and impressions. Until the prejudices and practices mentioned under improvement of breeds are abandoned, and prices of cattle rise higher, it seems general practical interest in this subject is not likely to be witnessed. A sustained propaganda for the removal of these restrictions must be maintained in the meantime.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—(a) *Little occupation during slack season.*—Roughly speaking it may be said that the average Gujarat farmer puts in about 180 days of work in a year on his farm. In the slack season, the Koli, Thakarda and other poor class cultivators either go out as labourers or wood-felling or idle away their time if nothing else is handy or if they are not disposed to leave their village and go elsewhere to secure work. The Patidar, Anavil and other better class farmers raise some crops by irrigation if they have a well, or idle away their time in gossiping. It is during the slack season (winter and summer months) that marriage season comes off, and a great deal of time is spent in attending marriages or performing *jatras* (pilgrimage to holy places).

(b and c) *Religious sentiments in the way of some subsidiary industries.*—Jainism has so much affected religious beliefs in Gujarat that subsidiary occupations which, though lucrative, directly or indirectly involve the taking of animal or insect life, such as sericulture, poultry rearing, pisciculture and pig farming will not be taken up, in spite of any amount of persuasion, propaganda work and expense by Government. Spinning yarn, rope making, basket making, *ghee* making, and embroidery are subsidiary occupations followed by some farmers in their own house. But these are generally on a small scale to supply their household wants and except in the case of milk, and *ghee* do not leave any surplus for sale. In the season mangoes, lemons, guavas, and other fruits are plentiful in some parts, and if the cultivators knew the art of canning and preserving they could have a lucrative industry to follow during their spare time. Government can do much in this line by the demonstration of the processes.

Baroda Government's efforts in this direction.—[illegible] Vagharis, and the forest tribes do some poultry rearing. [illegible] on a very small scale in their huts. Some time ago the Baroda State offered to send to Lucknow some youths of this class to learn [illegible] poultry rearing and also to provide them with means to start work on their return, but there was no response, and the idea had to be abandoned. For seri-culture thousands of rupees were spent in engaging experts from Bengal, preparing suitable buildings, providing suitable plants and growing mulberry trees, with a view to teach the industry to the forest tribes of the Navsari district. But even these animists were found to have been so much affected by the *Jiv daya* principle that they too did not take to this new industry and Government had to close the experiment. For pisciculture there is not the slightest scope in Gujarat. Fish-catching from tanks and rivers especially in the vicinity of towns and villages is resented by the *mahajan* and therefore, even those who use or sell fish have to catch it from a distance, quietly and stealthily. In the forest tracts of the Navsari district, the forest tribes have taken to lac-culture on forest trees, under the control and supervision of the Forest Department.

The Dairy Industry.—The most important subsidiary industry connected with agriculture in Gujarat is the dairy. Almost all cultivators and even some agricultural labourers keep one, two or more buffaloes. The milk is utilised for domestic use and for the manufacture of *ghi*, which is sold to local dealers who export it to Baroda, Ahmedabad, Bombay and other cities. The *charotar* tract in Gujarat (Kaira and Baroda districts) is specially noteworthy for *ghi*. During the last ten years, the dairy industry has been greatly developed in *Charotar*. In almost every village there is a cream separator. The cultivator sells his milk to the merchant who separates the cream and sells it to Bombay or Ahmedabad butter factories, while the separated milk is either thrown away or crude casein is prepared from it.

Popular prejudice against cream separation.—There are popular prejudices against the new dairy industry which involves the export of cream for manufacture into butter. There is an agitation against it on the ground that it deprives the villagers of *chhas* (whey) which they had in abundance when each cultivator prepared *ghi* in his own home instead of selling milk to creameries. The agitation, being based on selfish and false economic ideas of the agitators, has failed to do any permanent harm to the new industry, which has proved a great boon to the farmer though it has made *ghi* dearer for the local consumer. There is still a greater future for this industry, when it is developed on the co-operative lines, and the producers of milk themselves make their own cream and butter, and retain the profit which is now taken away by the middle men.

Lac culture.—Bee-keeping has not been found practicable but lac culture can be made more general than it is at present and deserves to be specially investigated. There are usually numerous *pipal*, *bordi* and babul trees in the cultivators' own fields in which lac can be cultured without trouble and expense, by simply attaching seed germ to the branches.

Indigenous fruits.—The chief fruits of Gujarat are the mango, *keri*, the plantain, *kela*, the pomegranate, *dadam*, the pummelo, papanas, the guava, *jamrukh*, or *peru*, the pine apple, *ananas*, the sweet lime, *mitha limbu*, the bitter lime, *khata limbu*, *the ramfal*, anona recticulata, the *sitafal*, or custard apple, *papav*, jujuba, *bor*, *jambu*, *rayan*, and the melon, *tadbuch*. Mango and other big fruit trees are generally planted on the border of fields, but sometimes a whole field is planted with mango trees. Lemon *papam*, *bore*, *chiku*, and plantain trees are also grown in a whole field, or a part of it, according to the available irrigation facilities. Fruit and vegetable growing has already been a source of profit to the farmer,

wherever it has been tried in the vicinity of towns and big villages. Lemons, *papaw*, *bore*, *jamrukh*, pomegranate, *chiku*, plantain and such other fruits are in great demand and the area under these is increasing. Vegetable growing is also a profitable occupation in a country where the majority of the people are vegetarians and is being done where irrigation facilities are available. There is a good field for further development of this business and cultivators would do well to take to it as a subsidiary occupation during their spare time.

(d) *Power industries.*—Oil pressing, sugar making, cotton ginning, and rice hulling are being done wherever possible, and no special demonstration is necessary. Already some progressive farmers in Gujarat are using power pumps in their wells for irrigation purposes; and the same power is used for running oil and flour mills, ginning machinery, rice hulling and such other industries on a small scale. Utilisation of cotton seed for felt, and rice straw for paper does not seem to have been tried, and if these afford any prospect they should, by all means, be investigated by Government.

(e) *Possibilities for small industries on a co-operative basis.*—Yes, but the only method would be to start small industries on a co-operative basis by the villagers themselves. It is not likely that capitalists could be induced to remove their concerns to rural areas or start new ones unless it pays them better than in urban areas to do so.

(*f*) Yes; particularly fruit preserving, jam and jelly making, lemon juice preparation, &c.

(g) *Home industries for upper class women.*—Subsidiary industries as *papad* and *sev* preparation, embroidery, lace making, &c., may be developed if an agency could be created to purchase the prepared articles. Women of the upper class farmers like the Patidars, Anavils, and Rajputs who do not work in the fields, pass their spare time in *papad* and *sev* making, embroidery and similar work which is now restricted to the family requirements. Great stimulus has been given to embroidery industry by a merchant of Navsari who purchases and exports such articles to Bombay and other places. *Papad* and *sev* have a market but these are not done by wives of farmers on a large scale owing to the difficulty in finding locally customers for the prepared articles. Similarly pickle and jam and jelly making may be done at home by women when those articles are made marketable. If agencies for supply of materials and purchase of finished articles are created by local leaders, a lucrative employment for women during the spare time in their own homes can be developed.

(h) *Lack of sanitary conscience.*—This would depend upon the interest created by education and propaganda work. There is great scope for this useful work, but it is not likely that it would be done until the sanitary conscience of the people is awakened.

QUESTION 18.—AGRICULTURAL LABOUR.—*Attachment to native soil.*—(*a*) The agricultural labourer in Gujarat generally likes to live in his own village and is unwilling to leave it. When there is no employment in his native village, he may go out to a neighbouring town to work in a mill or a ginning press, but as soon as the monsoon comes he returns home to till his own small patch of ground if he has any or to work as a labourer in his own village. It would be difficult to induce him to migrate permanently from his native village. He may, however, perhaps agree to migrate on the prospect of his getting on easy terms a plot of cultivable land.

Cost of labour high.—(*b*) There is shortage of agricultural labour in Gujarat. This is due not on account of its having become more mobile, but on account of the labour becoming more independent. The unskilled labourer whether paid in cash or in kind has greatly improved his economic position within recent years and prefers to be a cultivator of his own or tenanted piece of land than to be a worker for others. The scarcity of

labour seriously hampers agricultural operations and its increased cost impedes the execution of improvements. The position of the agriculturists under the changed conditions, coupled with the bad seasons, has been very hard. He has to pay more for labour and his produce is small. His cattle also cost him more. The only relieving feature in his case is that his surplus pays him more handsomely than before, on account of the rise in the prices of foodstuffs.

The only remedy is the introduction of labour-saving implements, but as stated elsewhere in Question 14 this would be possible to an appreciable degree only when the small and scattered farms of the cultivator are consolidated.

Surplus labour.—(*c*) If there be surplus agricultural labour anywhere, it may be induced to occupy and develop areas not at present under cultivation by the offer of free land and other facilities, such as capital on easy terms.

QUESTION 19.—FORESTS.—*Grazing facilities in forest areas.*—(*a*) Yes, so far as Baroda State is concerned. Grazing facilities are given to the extent compatible with the proper preservation of forest areas.

Methods of increasing a supply of fire-wood.—(*b*) Babul trees can be raised in abundance on the ravines and banks of rivers and *nalas*. This would not only provide more fire-wood, but also fodder for goats, camels, etc., in the form of leaves and pods. This has been done in the Baroda State with great advantage in connection with the Vatrak river in the Atarsumba Peta Mahal, where the Forest Department has raised good many babul trees, within the last ten years.

Growing babul trees in gauchars.—Fire-wood and fodder may be increased if the village *panchayats* take proper care of the village *gauchar* lands. The *gauchar* lands now hardly provide any grazing, as they are covered up by *aval*, *kanthar* and other bushes. If these are cleared every year by the labour of the villagers and if babul trees are planted in low-lying lands, which are unfit for grazing, there would be not only better grazing, but also more trees to supply fire-wood. The Baroda State has adopted the policy of giving ownership over trees grown in waste and *gauchar* lands to village *panchayats*, and this has to some extent stimulated efforts for growing more trees.

Village forests.—(*e*) Yes, village forests can be created in waste lands near villages through the village panchayats, if they are allowed to plant trees on the distinct understanding that they would have proprietary right over them. Mango trees are allowed to be planted even by individuals in *kharaba* lands in the Baroda State, on the understanding that they will have ownership over them, and that no compensation will be paid if the land is required for a public purpose.

QUESTION 20.—MARKETING.—*No organised markets.*—(*a*) The only crops in which there is something like organised marketing are commercial crops like cotton, wheat, castor, tobacco, and *sarsav*. Purchase is made mostly in the farmer's own village or through his moneylender. When there is no local buyer, he goes to a neighbouring town or city where there are purchasers of the goods he wishes to sell.

Gujarat towns have no well-organised markets. Cultivators coming for sale of their produce loaded in carts have to wait in some place either in the town itself or in some open place outside it. The cultivators have to deal with brokers and *tolats* (weighers) whose names are nowhere registered, and whose commission and charges are not fixed by any body exercising authority over them. Owing to this, cultivators have to suffer much from the exactions of these middlemen. They do not get the full value of their produce. The local merchants or the *mahajan* should appoint a committee, and only such

brokers as are licensed by this committee should be allowed to work. Rules may also be made for fixing commission to be charged, and for the prompt payment of prices and the publication of current rates.

Standardisation of weights and measures.—There are no uniform weights and measures in this country. In spite of the recommendation of a committee by the Government of India for the purpose no action has yet been taken. Early action is necessary for better marketing.

Such a market has been recently created at Billimor in the Navasari district of the Baroda State. Under the orders and suggestions of the State Director of Commerce, the *mahajans* of the place have framed rules, appointed a committee, and all the sales are conducted under its supervision. Similarly the *mahajans* of different places may be persuaded to adopt a like procedure.

Co-operative societies should take the lead in organising the sale of crops.—(*b*) The system of marketing and distribution is extremely unsatisfactory from both the ultimate consumer's and producer's point of view. The machinery has been fixed for so long that vested interests have arisen for its continuance and a stiff opposition would be offered to a break away from the established custom. Every individual producer does his business on such a small scale and usually under conditions of such economic serfdom that he is unable to assert himself, and there is no collective body of opinion which has strength enough to strike a new way. One would naturally look forward to co-operative societies to give or take the necessary lead in this matter, but they are so engrossed with their comparatively puny work of credit facilities that they refuse to give intelligent thought to these questions which will be of immense practical service if properly handled.

In most cases, the producer's interest in marketing crops is over as soon as the village merchant, who is also his *sowcar*, has weighed the grain and put it in his warehouse, all accounts to be settled later. Nothing could be more disastrous than this way of disposing of the crops, in the production of which the farmer has often undergone untold difficulties and miseries. But this economic dependence plays all these and similar freaks with his produce.

Legislation for standardisation of produce.—(*c*) Farmers and merchants having their produce have to realise that want of uniformity made no difference as long as India was concerned with the feeding of her population. The country must not export raw materials to pay for imports. Modern industry needs a uniform and unadulterated product. Not only the consignment should be up to sample, but the raw produce should not change materially from year to year. The farmers have got to realise that the mixture of varieties which occur in their fields result in serious loss of uniformity. Further admixture often takes place in the godowns of merchants after the product has left the threshing floor. The result is that the Indian produce lacks that uniformity and evenness which modern industries demand. It does not fall into a definite grade and therefore does not command much confidence or a high price. The advantage of a grade is not all on the side of the merchant and the manufacturer. The grower also benefits by the enhanced price which eventually results. Mere propaganda is not likely to bring in satisfactory results. Like the Cotton Transport Act for the prevention of fraudulent adulteration and improper description of cotton which has been passed and put into force in the Baroda State as also in the British districts of Surat and Broach to ensure purity of cotton produce, legislation may be undertaken to ensure the purity and grading to sample of wheat and other farm produce which is exported to foreign markets.

QUESTION 21.—TARIFFS AND SEA FREIGHTS.—*No special complaint.*—There is nothing special to complain against at present. Agricultural machinery

is free from tariff duty and there are no export duties on agricultural produce, except on rice from Rangoon.

Restriction not necessary on export of oil seeds, but necessary for bones and oil cake.—Export duty on oil seeds is sometimes advocated by some, on the ground that it would keep the oil seeds in the country to foster oil mills, and the cake would remain in the country to be used as manure, or food for cattle. But any such duty would ultimately fall on the cultivator, and there would be no corresponding gain, as under present depressed trade conditions, it is not likely that more oil mills would be started. It is, however, necessary to prevent the export of bones and oil cakes by prohibitive export duties. Bone with manure is now being used by cultivators, and the old prejudice against it has disappeared, at least in this part of the country.

Export duties on foodstuffs in some States.—In some States, e.g., Indore, there are duties on the export of wheat and other cereals. In some Kathiawar States there are also heavy duties on the export of cattle. These benefit the consumer within the State, by lowering prices, but harm the cultivator as he gets less than what he should for his produce, and ought to be removed by the States in which they are imposed.

QUESTION 22.—CO-OPERATION.—*Government activity should be limited.*—(*a*) (i) Government can do little in a direct manner for the growth of the co-operative movement. The essential principles of the movement itself make direct State aid, official support and unnecessary State control undesirable for the proper growth of the movement, especially now that the movement has acquired a permanent footing. The function of the State should strictly be limited to help in propaganda and organisation in the beginning and audit to safeguard the interest of outsiders. Too much State initiative and control has resulted in the fact that where the officials cease to take any interest in the movement, it languishes and dies down or goes on at a halting, creeping space. If the movement is to develop properly on sound lines from the beginning, the Government aid and control should be so given as to evoke and supplement, but on no account to provide a substitute for voluntary effort.

Devolution of powers to non-official agencies necessary.—The small village societies do need and will need for a long time to come strict supervision, audit and help from outside, but these should come not from the officials, but from the co-operative organisation itself. The Government should gradually surrender the powers hitherto exercised by them in the organisation, management and supervision of societies in favour of independent federations of the societies.

What Government can do.—However, the Government can do much to encourage the growth of the movement in the field of legislation by recognising priority of the claim of a co-operative society over other claims and the grant of facilities of recovery of loans without recourse to the costly delays of the civil courts.

Leaders should spring from the agricultural class.—(2) Much of what is being done to-day by the Government, in the matter of propaganda and organisation, should be done by the non-official agencies. These agencies to-day are not properly constituted inasmuch as they are mostly controlled either by the academical experts or those with social ambitions in the towns and cities, and not by leaders from among those who go to form the movement. It must however be recognised that these pioneers have rendered good service, and had it not been for their efforts the movement would not have developed as it has done. But it would be better if the farmers, the small craftsmen and the artisans, who to-day go to form the bulk of the membership of the movement and who have a material and tangible interest in it were slowly to replace these pioneers. The present leaders are generally

not from these classes, and this has partly been responsible for giving this purely economic movement a turn into the direction of social reform and social service. Even at their best the leaders are actuated and inspired more by feelings of philanthrophy, charity and social service than by the fundamental principles of co-operation as a form of economic organisation.

Members indebted both to sowcars and societies.—(b) (1) As far as possible, the credit societies should try to meet all the short-term needs of their members, without making it necessary for them to go to private money-lenders. This is not the case at present, and this has resulted in the fact that the member is merely shunted from the society to the *sowcar*, and *vice versa*, to meet the periodical demands from both these agencies. The calls from the society are met by borrowing from the *sowcar* and the calls from the *sowcar* by fresh borrowing from the society. Nobody could go on in this vicious circle of borrowing from one source to satisfy the other, and *vice versa*, without getting deeper and deeper into the mire of indebtedness.

Work of co-operative sale and purchase might first be done together with that of credit in the same society.—(2, 3) At the present stage of the development of the co-operative organisation in the country it is neither possible nor advisable to encourage the registration of separate societies for sales and purchase from the ordinary credit societies, especially as the membership is generally confined to the same persons. The demand for things other than credit is very uncertain, and it is not necessary to multiply societies and to subject members more than once to the formalities of registration. On account of the smallness of the operations and the difficulty of finding enough workers there is no harm in combining the functions of banking and trading.

Co-operative purchase of household necessities.—The purchase societies should be encouraged not only to deal in seed, manure and fodder as at present, but also in the household necessities of the farmers. The village shopkeepers advance their goods to farmers on credit and thus initiate them into debt from which they never get free, and charge, on the other hand, unduly high prices which the farmers cannot afford to question as he gets the goods on credit. By organising co-operative purchases of household necessities, there will thus be not only a good saving to the members, but the risk of their being involved in chronic debts will also be eliminated to some extent.

Societies for effecting improvements.—(4, 5) These will prove very useful in Gujarat, especially as the land is possessed by small holders with little capital of their own. Moreover, the improvements are not paying unless carried out on an effective scale, and this is not possible unless the small holders combine their resources. This is also true of the use of labour-saving machinery.

Consolidation of holdings societies.—(6) The Baroda Government has made a beginning recently in the direction of organising societies for the consolidation of small agricultural holdings and have announced some special concessions such as the exemption of transfer deeds from Stamp and Registration duties. In one way the division of land into small uneconomic holdings is the basic difficulty in the improvement of agriculture, and its removal is likely to be followed by a considerable advance in general prosperity. Looking to this, it might be useful in the initial stage if the Government make the tenure of the redistributed plots a privileged one by either giving it a small remission of land assessment or exemptions from special rates for sub-soil water advantages, on condition that lands once consolidated through these co-operative societies should be subject to the disability of not being capable of being parcelled out in plots below the size of economic holdings at the time they are sold, mortgaged or given away.

Societies for joint farming.—(7) Societies for joint farming have so far not been attempted in this part of the country. It is doubtful if the stage

has yet been reached where this form of co-operative organisation would succeed. The difficulties are of a fundamental nature. This might be looked upon as the ideal of the co-operative movement in the country which might be achieved at a distant date.

Cattle-breeding societies.—(8) The cattle-breeding societies, as such, are not likely to succeed in Gujarat partly because the breeding of cattle is regarded as a mere accident of agriculture and partly because of the want of sufficient grazing land. In the conditions obtaining in Gujarat, this, like the storage of grain or fodder, is the form of agricultural activity which is least likely to lend itself to be worked on co-operative basis.

Necessity for legislation to force a minority to join in improvement schemes.—(*c*) Such legislation is necessary, and it might be mentioned that a beginning has been made in this direction by the Government of Baroda. An existing law lays down that where two-thirds of the number of land-holders holding not less than half the total agricultural land of the village express their willingness to have a redistribution of their holdings for purposes of consolidation, the remaining one-third have to throw in their lot with the rest. They cannot prevent a work of such public utility because of their self-interest, ignorance or mere contrariness. There is no reason why this wholesome provision should not be extended to other forms of improvements such as fencing or irrigation. This is a very necessary form of legislation which will go a great way towards removing the difficulties in the path of agricultural improvements.

(*d*) Not completely, but they have to a certain extent in many places.

QUESTION 23.—GENERAL EDUCATION.—*Education in agriculture does not lead to taking it up as a profession.*—(*a*) The present education in agriculture is merely college education. Those who join the agricultural colleges have no preliminary grounding in agriculture. Like those who join the Arts and other colleges, the students in agriculture receive the same kind of general education in primary, middle and high schools. And their interest in agricultural education is not so much for taking up agriculture as a profession, but securing employment like graduates in arts.

Agricultural bias in primary schools.—To remedy these defects, the whole system of present education must be changed from the bottom. It is obvious that education in agriculture cannot be given in primary schools, but the readers and the curriculum for village schools can be so revised as to give village children a bias towards their ancestral profession. In addition to the readers containing more lessons about agricultural pursuits and practices, arithmetic for primary schools should contain such examples as relate to matters of daily use in the village, such as simple numerical processes, connected with buying, selling, making change, figuring, keeping simple accounts and other transactions common in the village. The computations should be useful and the problems genuine and in keeping with the realities of village life. School gardens and farms would also help to create an agricultural bias, and should be maintained in connection with all primary schools in order to show the pleasure and dignity of manual labour and to furnish materials for close observation of nature.

Agriculture at the stage of secondary education.—The middle and secondary school courses require to be so revised as to offer alternate courses to students of varying needs. After completing primary education, those who want to have vocational training should have an opportunity to receive it in the middle schools and high schools. The study of English need be made compulsory for those only who want to have higher literary courses with a view to their ultimately joining a college. The classes most largely represented in the school should determine the kind of vocational course to be taught in these higher schools. In rural areas where people of agricultural classes preponderate, agricultural courses may be made available in

continuation of the elementary school courses. In urban areas where there is a preponderance of people of the commercial or the artisan classes, commercial and industrial courses might be made available and so on for other classes.

(*b*) 1. Creating a bias for agriculture and affording opportunities for the study of agriculture in the middle and higher schools as suggested in (*a*) would improve the ability and the culture of the agriculturists and would also retain their interest in land.

Compulsory education in rural areas.—(*b*) (2. Primary education has been made compulsory in the Baroda State, since 1906. Experience of the last twenty years shows that educational effort is generally more successful in urban than in rural areas. The parents themselves being generally illiterate do not understand the advantages of educating their children, and prefer their boys, and even girls, to be turned out to earn money as soon as they can scare birds away from the crops or take the cattle out to graze. When primary education was made compulsory in the Baroda State, the villagers wondered why the Government should force them to send their children, and especially their girls, to schools. In some places objection was raised to the very existence of a school as an addition to the other plagues of village life, and they generally preferred to have their pockets depleted by paying fines for the non-attendance of their children in schools, but persuasion and pressure have gradually changed their mentality, and now children of both sexes are sent to school in much larger numbers. And after a generation, when those who have received education are parents of children of school-going-age, they will not have any objection to send them to schools. Even now the mentality of a majority of these people is changed, and the closing of an existing school would be resented and efforts made to have it reopened.

Wastage in educational effort.—(*b*) 3. The explanation of the small proportion of boys in rural primary schools who pass through the fourth class is to be found in the wastage of educational effort, consisting of non-promoted pupils who leave school before finishing the fourth standard, and the irregular attendance of the pupils of the agricultural classes who require their children to assist them in their work in the fields.

A large number of those who acquire literacy soon relapse into illiteracy on account of the routine way in which the occupation of agriculture is carried on.

QUESTION 24.—ATTRACTING CAPITAL.—*Agriculture low in social estimation.* —(*a*) There are several reasons preventing men of capital and enterprise taking to agriculture as a profession. Although the current Gujarati proverb: "Agriculture is best, commerce fair, service poor and begging bad" gives an exalted position to agriculture, in actual practice agriculture is considered a degrading profession and the usual epithet for an agriculturist signifies "a fool." This being the case, the present tendency is for agriculturists to leave off their hereditary profession and to seek service or enter business. Until agriculture which involves manual labour is raised in public estimation, there is very little chance of hereditary non-agriculturists with capital taking to agriculture.

Difficulties of shortage of labour and scattered holdings.—As a profession it is not yet placed on a scientific basis and there is always the uncertainty of the returns from capital. In Gujarat, at any rate, the land is divided in small holdings among a large number of owners, and it is very difficult for one to obtain land in sufficient area in one compact block to make farming on a scientific and large scale possible. In addition to these, there is the difficulty about the adequate supply of labour for agricultural work. The agricultural labourer, even more than the industrial labourer in India is hopelessly inefficient and unreliable. The wages, though small in appearance, are relatively high looking to the amount of work turned out, and

this, with the uncertainty of adequate supply, goes to discourage enterprise on a large scale.

Wide gulf between rural and urban life.—But the most potent factor that discourages men of capital from taking to agriculture as an industry is the complete isolation of the rural life in India. The life in villages is of a dull, humdrum nature. Few if any amenities of civilised life are available. Communications (roads, railways and telegraph) are very inadequate. There is little of social life from the higher point of view, as the country side is year after year depleted of the educated and civilised section of its population. The lure of the cities and towns is irresistible, and the gulf between the urban and rural life in India is very great.

Less risk and better scope in other fields for investment.—Another reason why those with capital to spare are not attracted towards agriculture is the scope for good investments, earning fairly good and regular dividends in other fields. The return is not only more reliable, but it involves no trouble to the investor in government and industrial securities. On the other hand, in agriculture the return is precarious and not solely dependent upon the skill and labour of the investor, and is a source of too great a strain and worry. These reasons combine to prevent men with capital and enterprise taking to agriculture as a profession.

Why improvements are not effected.—(*b*) The factors tending to discourage owners of agricultural land from carrying out improvements are three in my opinion, (1) Inadequate finance, (2) Fragmentation of holdings and (3) System of Land Revenue Settlement.

Want of suitable financing agencies.—(1) The problem of financing farmers for large agricultural improvements of a directly productive or protective nature has not yet been systematically tackled. The loans for this purpose want long terms for repayment, the principle underlying these loans being that they should be repaid from the increased yield of the land. Loans are made to-day to the farmers for very short periods, even when it is obvious that it is impossible for the borrower to repay it from the earnings of his land within a short time. The professional moneylender does not realise that the financial needs of farming are different from those of other industries and must be met in a different manner. The result is that the undertaking effected from loans from *sowcars* prove economically unprofitable. Land Mortgage Banks giving long-term credit on the mortgage of agricultural land and worked on co-operative principles are, therefore, necessary.

Scattered holdings.—(2) Another difficulty in the undertaking of improvements is the scattered nature of the holdings. This is retarding the progress of agriculture, and is making the sinking of wells, setting up of pumps, the use of tractors, and the introduction of other labour-saving machinery difficult, if not impossible, besides raising the cost of farming operations. This point has been dealt with more fully elsewhere.

System of revenue settlement.—(3) Where land revenue settlements are for short periods, the farmer is naturally disinclined to undertake costly improvements, as he is always afraid of the rates being put up and thus losing a part of the increased yield from the improvements effected by him. In theory the improvements effected in the land by the farmers' own effort are exempt from assessment when the settlement is revised, but this principle is not always observed in practice. It is possible that revenue settlements covering long periods would encourage agriculturists in carrying out improvements.

QUESTION 25.—WELFARE OF RURAL POPULATION.—*Duties of the Village Panchayats.*—The Co-operative Department is creating an agency that will handle better business, better farming and better living, but its methods are slow, though sure. There is, however, one department of Local-Self-

Government which is most intimately connected with village life in general and village administration in particular and can do much for rural welfare. If the village panchayats are strong and work intelligently with a sense of responsibility they are capable of doing immense good. The village panchayat should develop the whole village life, improve its sanitation, beautify it, and make it peaceful, pleasant, and full of live interest. Most of the villages are dirty and the life in them humdrum and is one of drudgery. Some of the old and really Oriental customs are dying out. The holiday celebrations have lost their zest, purity, and social coherence. The old village races, *melas* and festivals are dead or dying out, and in their absence the people flock to towns for what little enjoyment they could get. The attractions and celebrations of the village holidays has disappeared, and where a few remain they are rather vulgar and insipid. A revival of these old joys of village life is desirable. Life is not intended for mere drudgery. It must have its own joys and pleasures, pleasures that would ultimately increase the industrial efficiency of the people and remove dullness of life. It is, therefore, suggested that the Department of Local-Self-Government should concern itself not only with the village administration but with village life as a whole. It may assist the other specialised departments of co-operation, sanitation, agriculture and education in solving their problems. But it must be primarily concerned with the social economic and administrative problems of the village. It must try to develop the whole life. It should make careful inquiry and train men as honorary organisers from among the people, and employ some good inspectors as organisers of village life. They should instruct the people and the panchayats and help them to carry out the department's programme and ideas.

Training Village Leaders.—(*b*) The rural problem is a very difficult and complicated one, and the ultimate solution must depend upon the local leaders, their intelligence and their enthusiasm. If we have intelligent, sympathetic leaders in villages they can do immense work in stimulating interest among the cultivators. Special attention should, therefore, be paid to the training of local leaders. The right type of men should be found out and trained by opening classes at district headquarters. In this class lectures may be given for about a fortnight in (1) local-self-government and village panchayats, (2) co-operation, (3) principles of agriculture, (4) home hygiene, (5) sanitation, (6) village libraries, and (7) village problems in general. The lectures may be arranged by the Co-operative, Agricultural, Sanitary and Local-Self-Government Departments. In each class fifty men may be selected, four to five from each taluka. The men may be selected in co-operation with the local authorities. They must be village leaders, practical agriculturists, the real sons of the soil, and should be called at the joint expense of Government and Local Boards.

If this system is continued for about ten years a district would have 2,000 trained men in different villages who would understand the principles of various measures adopted by Government for village welfare and would heartily co-operate with the different departments of the state and make their work easy. Each of these men would serve as a local agent, and through him the villages may be approached for all development work.

Social and Economic surveys.—(*c*) The most important problem in the State is the rural, and the first necessity is to know the rural problem itself. Unless we thoroughly know it, it is difficult to find the remedy and apply it. Social and economic surveys of typical villages in different areas are, therefore, necessary. Such a survey should be comprehensive without being technical. It should make inquiries into the general agricultural practices and the social and communal life of the people. Every thorough survey should be the forerunner of new ideals for the communities. The scope of such an inquiry should be the same as adopted by Dr. Mann in his investigation of the condition of a typical village in the Deccan.

Condition of the farmer.—(*d*) The Baroda State departments of agriculture and commerce have recently made some economic and sociological surveys, and have found that (1) the average agriculturist is deeply indebted, (2) he lives in ill-ventilated and unhealthy homes and insanitary surroundings, (3) the main cause of his indebtedness is extravagant expenditure on marriage and funeral occasions, (4) he is ill-fed and of poor physique, and (5) suffers great loss from his ignorance and superstitions. As a remedy it is suggested that a work of consolidation should be hurried up, and that a land mortgage bank should be started.

QUESTION 26.—STATISTICS.—*Statistics not reliable.*—(*a*) Most of the Agricultural statistics collected by village *Patels* and *Kulkarnis* (village accountants) cannot be said to be reliable, as they are not checked or verified by any superior inspecting officer. Estimates of yield of agricultural produce and the census of live-stock and implements are results of mere guess work.

Literature should be in the Vernacular.—(*b*) The monographs on the various studies made by the Department of Agriculture and the statistics collected should be published not only in English but also in the vernacular language of each district or languages of the Provinces. It is only then that they could be read by or read to farmers. Leaflets and pamphlets issued by the departments should be read over to the people in the village *chowra* by the village accountant or schoolmaster. At present farmers receive very little benefit from the literature published for their benefit.

Oral Evidence.

49,032. *The Chairman*: Rao Bahadur Govindbhai Desai, you are Naib Dewan of Baroda State?—Yes.

49,033. No doubt you have interested yourself in the agricultural problems that have been dealt with in British India?—To a certain extent, yes. I belong to British India; I am a landholder, and although I am employed in the Baroda State, I am a British subject and I know something of the agriculture in the Kaira District, to which I belong.

49,034. Do you find that the agricultural problems of an Indian State are much the same as those of British India?—The problems are identical. Our territory is so interspersed with British territory that our problems are almost the same, and we have been following, as far as possible, what is being done in British India. For instance, we sent some of our students to Mr. Calvert when we learnt he was doing very good work in connection with consolidation of holdings in the Punjab, through co-operative societies, and he gave full instructions to them, and we have been trying to do the same in Baroda. We have also looked for help to Dr. Mann in Bombay, and have been accorded it whole-heartedly.

49,035. *Professor Gangulee*: Did you start this movement after Mr. Calvert started it?—Yes; we started this consolidation of holdings through co-operative societies only last year. But this problem of consolidation has been taken up by us since 1916. In fact it was I who proposed it in 1916, when I was put in charge of the Development Department of the State, which included the Agricultural and Co-operative Departments. I thought that there was no chance for improvement in agriculture so long as the fields were small and scattered. I have my own fields in Nadiad of the Kaira district; one of them, about an acre, is on one side of the town, another, about an acre and a-half, is on the other side, and a third, only half an acre, is somewhere else. We find it very difficult to send labourers from one field to another or to use improved machinery and transport it from one place to another. From my own personal

knowledge and personal circumstances, I saw there was no chance of improvement in agriculture till we solved this fundamental problem of consolidation of holdings. A committee was appointed, and, as the initiator of the proposal, I was appointed Chairman of that Committee. I have got a copy of the Report* of that Committee. Perhaps the Committee would like to use it.

The Chairman: Yes.

49,036. I see on page 155, in answer to Question 1, you suggest that so far as the Baroda State is concerned, it might be well to separate the function of experiment and research from that of demonstration. Have you sufficient staff to make that separation feasible?—In the Baroda State we have not. As I stated, we generally follow the experiments made in British India, in Poona and other places. We test what they have found to be good in our own farms, and, having tested it, we give it out to our cultivators.

49,037. *Professor Gangulee*: You have no research station of your own?—No; we cannot afford to have one.

49,038. *The Chairman*: From your answer to Question 3 (*d*), I find that apparently you have not been successful in persuading the cultivators to take up the practice of preserving fodder by means of the silo?—No. In fact, there is not sufficient fodder to be put into silos. We find that year by year the area under fodder crops is decreasing, giving place to cotton and other commercial crops. In fact, the fodder problem is one of the greatest of our difficulties at the present moment. As soon as the winter is over, most of the poor cultivators have no fodder at all, and they feed their cattle on leaves and other things. As soon as the monsoon comes and the grass sprouts, the cattle feed on it so greedily that they die of overfeeding. Silage has been tried, but cannot possibly be adopted except by a few well-to-do farmers who can afford it.

49,039. And wherever fodder crops are grown, are they as a rule irrigated from wells?—Yes. Generally they grow *sundhia, juar* and maize. I may say that irrigation by tanks has not been quite successful in our State. As I have stated, our big rivers are so deep that water in them cannot pass through the channels unless *bunds* are erected in foreign territory. That question had been taken up by the Irrigation Commission, and the Government of Bombay is investigating it. Unless the big rivers are harnessed there is no hope for irrigation in Gujarat. We have got small petty village tanks which supply rice lands, and we have some big irrigation tanks; but, unfortunately, unless the season is one of plentiful rainfall we do not find water in them at the time when water is wanted.

49,040. Would you turn to page 161 of your answer to Question 6, "Agricultural Indebtedness"? Is it your view that these five recommendations that you make for controlling moneylending, are feasible or practicable in the present state of public opinion?—Some legislation would be necessary; if proper legislation is undertaken it can be done.

49,041. One of your proposals is that no man should be allowed to lend money to the farmer without a licence. Is that a feasible proposal?—At present anybody can be a moneylender and keep his accounts in any way. Of course, it is a little drastic to require every moneylender to take out a licence, but the problem is so drastic that drastic remedies will have to be undertaken.

* Not printed.

49,042. It may be that drastic measures are required, but would they be practicable? Do you think that in any part of India it would be possible for the administration to make such laws effective?—The revenue officers can do it, or the village panchayats can do it. In all our villages we have panchayats, and if the work is entrusted to them they can do it.

49,043. You think you could prevent any man from lending money to a farmer unless that man had a licence?—He can make private loans, but he cannot be a *sowcar;* he can lend money as a friend to a friend, but if he wants to set himself up as a moneylender or *sowcar* he must keep proper books and pass proper receipts, and he must be a man who is somewhat literate and can read and write. At present, people write their accounts on the walls and on pieces of paper, and they are not able to render proper accounts.

49,044. Would you turn to page 175 of your answer to our Question 10 (*b*). I see there that you think that the time has arrived when a law might be passed to prevent a dealer from selling, as fertilizers, anything that he might choose so to describe. Do you think there is much malpractice in that respect?—That is what I am told; there are printed guarantees, but the stuff does not fulfil the guarantees.

49,045. Do you say that as the result of proper scientific tests?—We have tried some fertilizers on our farms, and the Director of Agriculture has told us that they do not come up to the mark. I find this in the Report of the Industrial Commission. Our State also had appointed a Commission of that kind, and that Commission also stated that unless there was a guarantee that the fertilizers were pure and proper, they could not be expected to give good results.

49,046. In your answer to our Question 12 (ii) you are talking about the rotations and mixtures of crops. Is the mixing of crops a common practice in the Baroda State?—Yes.

49,047. What is the view of your Agricultural Department of the value of mixing crops?—All the mixed crops do not require the same amount of moisture.

49,048. It is an insurance against the vagaries of the season?—Yes. They also say that some of the crops supply the substances required to keep the soil in proper condition.

49,049. How far has your own experience covered the technique of cultivation?—I cannot speak from personal knowledge, because I have been engaged in different work.

49,050. In the matter of manufacture of agricultural implements, Question 14 (*c*), it has been suggested on occasions that the manufacturers have not been given facilities to discover exactly what it is that the cultivator requires. Have any manufacturers made their appearance in the Baroda State?—Yes; some gentleman, representing an American firm (I think it was the International Harvesting Company) came to Baroda. He said that his company would make anything suitable, but that they should be provided with a statement of local conditions. For instance, tractors are used there, but tractors of the kind that Gujarat lands require cannot be manufactured until the conditions of the Gujarat soil are known to the manufacturers. I think they now intend to depute one or two of their own men to study local conditions and to design implements suitable to those conditions. They have also been supplying a lot of free literature with a view to create a market for the implements.

49,051. But, in your experience, have they been given every facility for making local inquiries?—We give them all facilities; in fact, we depute an official to go about with them and to give them all the information that they desire.

49,052. With regard to Question 15 (*b*) on veterinary matters, you say that your veterinary dispensaries, as in British India, are financed partly by Local Boards, but Local Boards carry out the management. Do they control the veterinary officers?—No, the Director of Agriculture controls them; but the lower subordinate staff is under the panchayat.

49,053. The experiment of handing over management to the Local Boards has raised certain difficulties, has it?—It has. As regards transfers, if you want to transfer a *Salotri* from one district to another, unless the consent of both the districts is obtained no transfer can be effected.

49,054. And I suppose that if the Surgeon in question does not wish to go he has ample scope for canvassing members of the Local Board?—Yes.

49,055. Would you turn to Question 17 (*b*), subsidiary agricultural industries. Apparently, in introducing these, the religious sentiments in the State are a real difficulty?—Not only in the State, but in the whole of Gujarat there are real difficulties. I think myself that the only subsidiary industry that can be successfully adopted is the dairy industry; the methods followed with regard to this industry at present are a sheer waste, in fact an immense waste. Each cultivator has a buffalo, he prepares his own *ghi*, he churns his own milk, and a good deal of wastage takes place in these processes. We have been advising them to have a co-operative dairy for the whole village, so that if a co-operative village society is started it can tackle many other questions. For instance, the question of cattle improvement is at present nobody's business. The society can take the produce as well as look after the cattle.

49,056. Have you had any success with that propaganda?—Not yet, but dealers from Bombay have come and established themselves in our villages, and the people give milk to the owners of creameries who come from Bombay or Surat, and they are allowed to instal themselves in the village on condition that they pay Rs.500 or Rs.1,000, or some such figure, as a grant to the village panchayat.

49,057. *Professor Gangulee*: Is it a grant or is it a loan?—It is a free grant; in fact, it is the price for the concession of starting a creamery; we have some 50 such creameries in our districts. They collect the milk, separate it, and export the cream to Bombay, where it is manufactured into butter.

49,058. *The Chairman*: Would you turn to Question 22 (*b*) (6)? You make a suggestion there that in order to consolidate holdings Government should make some concession in the matter of the land revenue. For a limited period, I suppose?—Yes.

49,059. Has that ever been tried?—No, but we have given them exemption from stamp and registration fees.

49,060. You suggest that this is an added attraction?—Yes, that is so. We started about three co-operative societies for the purpose of consolidation after our Registrar of Co-operative Societies returned from the Punjab. We have exempted those people who have consolidated their holdings from stamp and registration duties.

49,061. The remission of land revenue has a very pleasing sound about it, has it not?—Yes, in fact the peope would like not to pay any land revenue at all.

49,062. There is a point I would like to bring out in your answer to Question 25 (*a*). You say that local self-government should concern itself not only with the village administration but with village life as a whole. Is it your view that it would be an advantage to the countryside if local self-government grew in strength and extended its functions?—Even now sanitation is one of their functions. My point is that this should be emphasized on

them. The panchayats should be encouraged to look after sanitation by giving them small grants or creating local leaders. Our greatest difficulty is the want of leaders.

49,063. The proportion of local taxation is still very low, is it not, as compared with European countries where the local authorities undertake far wider duties and the tax is naturally greater?—We have a local cess as a surcharge on the land assessment. But the panchayats have not introduced any other local taxation for local wants.

49,063A. Would it be, in your judgment, an advantage if local authorities extended their field?—I should think so.

49,064. But there would be some difficulty in persuading local authorities to tax their constituents?—Yes; the local authorities would use money provided by the State, and they would do so without any responsibility; but we should not give anything from the general revenues for the local wants.

49,065. Do you think your local authorities are tending to assume more responsibility?—Yes; for instance, money obtained from creameries is utilised for local wants, for educational purposes, and so on. Then again we have given them certain additional sources of income; in fact we tell them that if they raise *babul* plantations in the *gowchar* lands which are not at all fit for grazing, then they may have the fuel for their own use. Then again if there are trees which have become dry, we tell them to cut those trees and take them away, and thus make some money out of them. We also tell them to take away the droppings of cattle. We give them the right to collect these droppings in order that they may make some money, and also, in a way, to keep the village clean. Where there are intelligent leaders many devices have been adopted.

49,066. Are you familiar with other Indian States?—I know some of the States in Gujarat.

49,067. Is it your view that opinion amongst responsible men in the States is, on the whole, favourable towards common action as between British India and the States in the matter of, for instance, legislation and rules designed to prevent the spread of animal epidemics?—The general tendency for all States is to have their own laws.

49,068. I do not refer to laws common to British India and the States. What I mean is separate action designed to bring about a common end?—I think that they would willingly join, because they would readily understand the advantages to be derived. Of course, instead of making laws made in British India applicable to the country as a whole, each authority should have a similar law of its own.

49,069. In other words, each party taking appropriate action to bring about the desired end?—Yes.

49,070. But, plainly, where the country is divided amongst contiguous authorities with land boundaries between them it is impossible to hope for success in matters, for instance, of animal diseases, plant pests, and the like, unless you have a common policy throughout the country?—Quite so.

49,071. *Dr. Hyder*: Could you tell me whether the predictions of the old astrologers which you have mentioned in your note have been proved as a matter of fact by experience?—I made some inquiries into this matter when I was a District Officer, and I must confess that my efforts to obtain sufficient data to bear out these predictions did not prove a success. I myself think that all these sayings of the astrologers should be tested and disproved before the cultivators, so that the latter may know that they are labouring under a misunderstanding in these matters; the difficulty is that they simply blindly follow these things, and often false hopes lead to disappointments.

49,072. With regard to the control by the State of this business of money-lending, are you aware of the recent attempt made in the Punjab and the

agitation caused thereby?—I have read about it in the papers; I think myself that there will be a similar agitation here also, but we must be prepared to meet it.

49,073. With regard to the charge for water, may I know if that is based, in Baroda, on the area irrigated irrespective of the crop grown?—No, there are different rates for different crops; for instance, sugarcane has one rate.

49,074. Has it got two bases?—Yes, the crop basis and the area basis.

49,075. Have you got any water diviner employed by your Administration?—No; but we sometimes employ Major Pogson, the Bombay diviner. Personally I do not believe in this water divining, but our Government thought that as the Bombay Government have been trying this, there must be some good in it and that we might try it. Major Pogson was shown a few places, and while he was successful in one or two cases, in some others he failed, and we could not get any satisfactory result.

49,076. Who owns the bonemeal factory in Nadiad?—A *patidar*.

49,077. And the workmen are cultivators?—No. They are low class people. The cultivators use the product, they do not touch the raw bones. The labourers are obtained from the untouchable and depressed classes.

49,078. The cultivator does make use of the finished product?—Yes.

49,079. The prejudice is dying out?—Yes. Even the prejudice against night-soil manure is disappearing. Years ago they would not use it even if it was given free, but now-a-days there is competition for it, and the Municipalities are making a good income out of it.

49,080. There are some startling statements which you make (and they are much too advanced for India) with regard to castration, the use of bones, and things like that. You say, "Immense loss is caused to the farmer, not only by the Rabaris' and the Brahmins' cows, but also by bulls which roam about the country as *res nullius*, and are a nuisance both in the streets and the fields." Referring to the custom of letting loose bulls, you say that it is not only necessary to castrate them but to destroy them. Do you think public opinion will be in favour of it?—It would be dead against it, but I should not care for public opinion, because I consider that the letting loose of bulls is a great nuisance. People have got the idea that letting loose a bull is a great merit. These bulls are a nuisance not only in towns, but also in the villages to the crops; they also spoil the breeds. I have started this experiment. I have given the Veterinary Surgeons an instrument for the crushing of the veins. They go about and do it quietly. If people knew about it, they would protest.

49,081. Castration is considered as a great sin?—It is considered as a great sin. When I was a District Officer about 10 years ago I discovered that the cultivators took care of their young animals if they were she-buffaloes, but they would not have he-buffaloes. They would go to the *mahajan* with a rupee, and the *mahajan* would accept the young calf. In most of the Gujarat towns the Mahajans, and especially the Jains, have what are called *pinjrapoles;* that is, places where infirm and old cattle are looked after.

49,082. Do you not think that there are a good many things which an Indian administrator can do, but which the British Government cannot do?—I do not see why.

49,083. Many things would be said against the Government?—Propaganda work can be done by the British Government as well as by any Indian State. Let the people be told that they have followed wrong practices. Probably they themselves would learn, but some attempt should be made. You must agitate, and hammer it into the minds of the people.

49,084. An Indian administrator might do some *zabardasti*, but do you think there can be *zabardasti* in British India?—I would prefer benevolent despotism when the people do not improve, even after persuasion. That is my personal opinion.

49,085. *Sir Chunilal Mehta*: Is not castration in its new form, crushing of the veins, practised more or less secretly?—Yes. If people came to know about it, they would protest. In course of time they may not protest.

49,086. Is it not more or less freely practised in Gujarat in British territory?—No. Here the cultivators do not keep cows. One of the reasons for not keeping cows is that the bulls are useless to them. There are some passages in the old Smritis (I do not know whether they are real or are mere interpolations) which say that it is a great sin to castrate a bullock. So, some years ago, I composed some contrary *slokas* to the effect that people would go to Heaven if they did this. My object was that cow-keeping and bullock-rearing should be encouraged. It is a great problem.

49,087. *Dr. Hyder*: The central problem before the Commission is this: we have people who are small holders; their holdings are scattered; on account of their religious beliefs they will not take to subsidiary occupations. Can you give us any suggestions to help us out of this difficulty?—Fragmentation is due to the divisions made at each succession. This should be stopped, and lands already fragmented should be consolidated. Let this fundamental remedy be insisted upon and you will have done much to solve all other problems.

49,088. It is constantly said by people that this country is becoming poorer and poorer, and owing to the massed prejudice of centuries they will not take to other occupations, and their holdings are scattered. Even if we consolidate the holdings, the problem still remains before us, because they will not undertake other occupations?—They will have to; they are being worn out. Many people go to other parts of the world, such as Africa, Fiji, &c., to work. They feel a sort of shame to labour in their own village.

49,089. Do the people go to South Africa?—They may not be going now, but many of the Gujarat people have gone there. In my opinion, we have too many farmers. I should like to have a few good farmers, rather than too many farmers who eke out an existence.

49,090. Does your statement in regard to agricultural labour, that the unskilled labourer has improved his position, apply to British India also?—Yes. The conditions in our State and the adjoining British territory are similar.

49,091. Have you got large forest areas in your administration?—No, it is very small. We have got forests only in the Navsari district and the Kathiawar district of Amreli. It is about 600 square miles.

49,092. In regard to legislation for the purpose of standardising of produce, do you not think that we should begin first with crops which are exported? Do you not think it would be desirable for the trade to evolve such an organisation?—I think you should begin from the beginning in the villages. The seed used there is so bad that it produces uneven produce. Then also the cultivator has yet to learn that it is to his advantage to make his produce uniform.

49,093. I give you an example. The South Africans are organising their fruit industry, and there is a 20 per cent. rejection at the port. Do you not think if 20 per cent. of our export were rejected because it did not come up to the specified requirements, there would be a difficulty?—I think it would be for the exporters, the big firms in Bombay, to see that it is.

properly graded. I suppose it is being done now in Bombay. They should see that inferior stuff is not exported.

49,094. Supposing Government said that a certain portion of the material for export was rotten, and should not be exported, say, 5 per cent., do you not think there would be a howl?—Possibly. But whenever any remedy is proposed there will be a howl from interested parties.

49,095. You say there are export duties in Indian States. Are these export duties merely remnants of their sovereignty?—They think it will secure cheap food for their people if they do not allow it to go out.

49,096. It is not more than 5 per cent.?—Possibly.

49,097. That is given in Aitchison's Treaties?—I do not know; but they do prevent export.

49,098. You make a suggestion in regard to societies for joint farming. In Europe the people who do this kind of thing are Italians?—What I have said is that it is not possible.

49,099. The Italian loves fellowship; he wants to work, whether on the railway or on the farm, together with his fellow countrymen. Do you think there are such castes here with a strong communal feeling of fellowship and close association? If you had them we could have these societies, not otherwise?—That will have to be created, probably.

49,100. You have not got any such castes?—Castes we have, and we have also some societies of castemen only. I should like all castes to join in a society for the common good. Co-operation can do much; all these things would come about by co-operation.

49,101. Could you give us your opinion about general education, primary and secondary?—Twenty years ago, His Highness the Maharaja Gaekwar, made primary education compulsory in the Baroda State. Recently His Highness asked me to review the result of that measure, and I have submitted a report on it. By this time, in the Baroda State, half the population should have been literate, in the sense of being able to read, write and know some arithmetic. But, as a matter of fact, I find that only one-sixth of the population is literate. I have given the reasons. In the first place, the State has not been able to provide schools in all villages. You cannot compel a child to go to school unless the school is within one mile of its residence. Some of our villages are so small that unless we provide a central school for a number of them and provide 'buses to take the children to school (because there are so many *nullahs* and rivers to be crossed), it is not possible to have compulsion. We had to give up the idea in the case of those villages; we cannot have a school for 10 children. We are waiting for the time when it will be possible to have a school for four or five villages. Compulsory education has been successful in urban areas. In rural areas, the parents themselves being illiterate, prefer not to send their children to school. They send their children to scare crows away from the crops.

49,102. *Professor Gangulee*: The primary difficulty is one of transportation?—Yes, in these small villages.

49,103. Has this measure, as a result, created a desire for compulsory education?—Yes. When we started schools in some villages the villagers said, "Why add to our miseries by having this schoolmaster?" They were prepared to give the Sarkar a *nazarana* of Rs.500 for not having a school. They would say, "Why add to our miseries by giving this additional plague? We have got the *talati*, we have got the *kulkarni* and the police; why add this?" Then we said that it was for their benefit.

49,104. *Dewan Bahadur Malji*: Those notions have died out?—Yes. Now, when we attempt to remove a school, a petition is sent requesting us not to do so.

49,105. *Dr. Hyder*: Who bears the cost? Have you imposed any cesses for this purpose?—It is all State managed; it is free.

49,106. *Professor Gangulee*: Have you any difficulty in the supply of teachers?—We have great difficulty. We have a training school at present. At one time we had started four training colleges and we had a fair supply of teachers, but we could not maintain four training colleges all the year round. So now we find there is a shortage of trained teachers. As regards female teachers, we find that in this country the number of women following the teacher's profession is negligible. Even widows do not take to it. We would like to have female teachers in all schools, even for boys' schools. But we cannot induce them, even by offering scholarships, to take to the profession, which is considered in the community to be rather degrading.

49,107. *Dr. Hyder*: In this matter of primary and secondary education, what is the ideal that you in Baroda have placed before yourselves? Is it education for a livelihood, or education for education's sake?—At present it is only literary education, to earn a livelihood by service. It is as bad in Baroda as elsewhere. We are now tackling this question. We see no reason why the matriculation examination should come in the way of students who want to take to agriculture or some other profession. We have now appointed a committee, and we intend to have our own University for Baroda.

49,108. Are you giving a vocational bias to your system of secondary education, or is it to remain general?—General; but we have got the Kala Bhavan Institute, where students who fail to pass the Matriculation can go.

49,109. What is your opinion as to giving an agricultural bias to primary and secondary education? Do you think it is a good thing?—I think a good beginning has been made in the Bombay Presidency; it is not education in agriculture, but creating a bias for it; an attempt has been made in Bombay Presidency, and we are going to follow that up; we have started a school of that kind. From the beginning, from the primary school, we should like to give some sort of agricultural bias; in fact, all our books should be so devised as to draw attention to actualities rather than hypothetical statements. For instance, an arithmetical problem should be stated in this way: If 10 seers of wheat can be had for a rupee, how much will one seer cost, and so on. The data supplied in the statement of arithmetical problems are usually wrong; for instance, they say: if 10 yards of silk cloth can be bought for a rupee, or, if Rs.16 can be got for 1 maund of tobacco; of course, those data are all wrong. It would be a good thing if arithmetic were taught in such a way as to give some idea of current prices.

49,110. What is the period of settlement in your district?—Thirty years; but in one case we have tried the experiment of extending the settlement to sixty years, and we have found that in that taluka great improvements have been made by the cultivators because they have not been afraid that they would have to pay for the improvements. Our policy is not to charge on improvements.

49,111. *Sir Chunilal Mehta*: You say there are not many co-operative societies in Gujarat; is there any particular reason for that?—In Gujarat the *sowcar* element is very strong, and the people like *patidars* are better off, so that they do not want co-operative societies.

49,112. They are able to get what accommodation they want at reasonable rates of interest?—Yes, the better class of cultivators are able to.

49,113. You also recommended that the books of moneylenders should be registered; what had you at the back of your mind?—Frauds perpetrated by false books and not keeping proper accounts; it is a very difficult thing.

Rao Bahadur Govindbhai H. Desai.

49,114. You spoke of wells as being a very substantial source of irrigation; have you seen the water lift?—Yes, I have.

49,115. Would say the black cotton soil of Gujarat would be suitable for well irrigation?—No, it is not; it may be in some places where the land is not quite black, but in pure black soil irrigation is not possible; we have come to that conclusion by actual experiment; we have constructed a tank at one place with the object of providing irrigation facilities, but they say it will spoil the land and they do not want it, except that in times of scarcity it might provide a little water.

49,116. Even so, there might be great scope for well irrigation in Gujarat?—I think that is the source most suitable for irrigation purposes. When the millenium comes and the whole of his land is consolidated, each cultivator will have a well and a pump on his farm; he will then be employed not merely for three months as he is now, but during all the year.

49,117. You are trying to bring about that millenium especially by wells?—I am only a fly on the wheel.

49,118. You are trying to copy the Punjab method of consolidation by co-operative societies?—Yes.

49,119. What is your experience of this Punjab method? Have you tried it for any length of time?—We have tried it in two villages, but the progress is not satisfactory. It is done by a method of voluntary exchanges; the members of the society exchange their lands, but this voluntary exchange can be done without societies; it is not necessary to have a society. Then, again, the scope is limited.

49,120. *Mr. Calvert*: Is it not the difference between organized exchange and unorganized exchange?—Yes, if that can be done by the village panchayat, which is an organized body; I do not understand why a society should be necessary. At any rate, the society will come to an end as soon as sufficient people have exchanged their lands, and so we have not encouraged the multiplication of such societies.

49,121. *Sir Chunilal Mehta*: Would you, then, be in favour of legislation, even with the example of the Punjab before you?—Yes, certainly; of course, we are very grateful to the Punjab Government for the help they gave us, but we do not find it suitable in this Presidency.

49,122. In constructing wells, do you find that the water level is going down?—It varies; in a good year it rises; it has risen now. Our system of charging for water is the same as in the Bombay Presidency; if the water is below 40 ft. we do not charge for subsoil water. In some places the depth of water had gone down to 50 and 60 ft. We have investigated that matter and made concessions.

49,123. But this year, owing to last year's copious rainfall, you find that the water level has risen?—Yes.

49,124. Have you any views as to the conservation of rain water in Gujarat as it falls?—I have stated that we should have more *bandharas;* the big rivers have yet to be harnessed. Probably the Bombay Government will find some solution in course of time.

49,125. Has not the *bunding* of fields and tanks been done by the people from time immemorial?—They used to do it.

49,126. Is it being neglected now?—Now they are subject to laws and the rights of riparian owners and the practice has decayed. It should be undertaken by the Government rather than by private individuals.

49,127. That is, *bunding* of streams?—Any running rivers.

49,128. I am thinking more of *bunds* as we know them, round about the fields?—Yes, that could be done to improve the land.

49,129. Do you think that helps?—Yes.

49,130. Is it being done on a large scale in your State?—Yes, to a considerable extent; it improves the land. There is sloping land from which the rain water will run off.

49,131. Do you provide any facilities for this work being done by the people?—We give *taccavi* loans.

49,132. Do you place any technical men in charge to give advice?—No, the people do it themselves; wherever we have found excess of rain water and accumulation of rain water leading to disastrous results we have drained it ourselves. We leave small things to the cultivator.

49,133. Have you suffered any losses in the recovery of *taccavi*?—Never.

49,134. It has often been stated that the crop yield is diminishing; have you had any experience of that?—Yes, diminishing on account of wrong processes.

49,135. For instance, would say that an acre is now producing less than it used to, say, 30 years ago?—That is what I am told; I have not myself investigated it, but my people tell me that in the time of my father a bigha would produce, roughly speaking, 40 maunds of paddy, while now it only produces 25.

49,136. You have not had any examination made?—No.

49,137. *Dr. Hyder*: Is it the same bigha now as it was in your father's time, or some other bigha?—The same.

49,138. I was wondering whether cultivation had not spread to inferior lands?—They say the produce now is less than it used to be on the same fields; but that may be due to a variety of causes: insufficient rain, unsuccessful working and so on.

49,139. *Sir Chunilal Mehta*: Do you think the yield is diminishing?—It is diminishing, and I believe it will diminish still more if measures are not taken for improvement.

49,140. *Professor Gangulee*: Can you offer any explanation of the diminished yield?—Precarious rainfall, damage by straying cattle and damage by wild animals. There are so many stray cattle; the fields are small and scattered; they cannot have them watched.

49,141. But those conditions must have obtained from the time of your father?—But they are intensifying now; in some cases the cows are trained to go to the owner's house and be milked, and then go to the neighbouring fields. If the neighbouring cultivators object, it leads to blows, and they have to go to court and spend money on litigation.

49,142. *Sir Henry Lawrence*: Of what part of the country are you speaking? Are you speaking of your father's lands in Nadiad?—Yes.

49,143. Have you any accurate records of the outturn of fields around Nadiad?—No, no records; it is only traditional.

49,144. *Sir Chunilal Mehta*: Of course, cultivators never admit that the present is as good as the past?—I suppose it is a human tendency to glorify the past, although the present is more advanced than the past.

49,145. Do you think more manuring was done in the past?—I think so; there were more cattle in the past than there are now. My father used to keep two or three buffaloes, but I have got none now; I cannot afford to keep them.

49,146. *Professor Gangulee*: Do you say the cultivators were more fit, physically, in those days than they are now?—I suppose there must have

been deterioration on account of malarial fever and insanitary conditions in the villages; we do not find such stalwart men now as we used to see; they are all sickly and underfed now.

49,147. *Sir Chunilal Mehta*: What are your plans for making village life more attractive? Would you do it through the panchayats and local boards?—Yes, and also with the help of the urban population; I would have urban clubs to go round and see what the difficulties of the villagers are, and help the villagers.

49,148. You say that social customs are largely responsible for thriftlessness?—Yes, I do say that.

49,149. They are included, at least, in one of your paragraphs. You say social customs are largely responsible for thriftlessness?—I do say that.

49,150. You say that there is scope for social reform. Would you entrust that to the panchayats and the local bodies?—They would not do anything. I may remind you of what happened in Kaira, in the case of *patidars*. Government passed some legislation, which is still in force, that a *patidar* shall not give more than Rs.300 in dowry, or spend more than Rs.300 in a caste dinner, and if he does so, he shall be punished with imprisonment and fine. I think that was passed in the time of Mr. Sheppard. The Baroda State has also passed such legislation, but that is a dead letter now in both the jurisdictions.

49,151. Then what is your point, if you would not have legislation?—I would ask people themselves to resolve not to have any caste dinners, funeral dinners, or pilgrimages, dowries, &c. There is so much terrible waste.

49,152. Then, in addition to the panchayats and local Boards, would you like to have some kind of agency which would tour in the villages and would go on preaching against such customs?—Yes. We have done that in our Dewasthan Department. There is a department in the State to look after the Dewasthans and temples. Certain temples own alienated lands, that is rent-free lands. When the *pujari* (priest) is not a proper person, or when the temple falls down, such lands revert to the Government. But Government does not take anything of that. It has created a fund out of these Dewasthan savings, and from that fund we employ preachers (there are at present two of them) to go about in the State, like the old Manbhats, and speak to the people about the waste that occurs from evil social customs.

49,153. *Professor Gangulee*: Can you get rid of undesirable priests?—Yes, but that is a different question.

49,154. *Sir Chunilal Mehta*: How long have you tried this?—For the last ten years.

49,155. Have you found any benefit out of it?—It is difficult to gauge the result. But there is now a tendency to spend less than used to be spent before.

49,156. To combat this evil, would you favour some kind of organization which would employ men possessing agricultural knowledge and who are able to work as social reformers in the villages?—Yes; it would be a very useful thing, because it would awaken the people.

49,157. Do you think we can get men suitable for this purpose?—There are many people out for *sevas* (social work); if their number were increased, it would be useful. I think there is an organization now doing some service in most of the talukas.

49,158. There is an awakening?—Yes. Some people have got *seva mandals* and other such organizations.

49,159. *Professor Gangulee*: Are these *seva mandals* and other organizations run on communal lines?—Yes, mostly on caste lines.

49,160. Do you think that is desirable?—In the absence of anything better, they are doing some good.

49,161. *Sir Chunilal Mehta*: All the workers are not working on communal lines?—Some are working for all communities also.

49,162. Mr. Thakkar, for instance, is working for Bhils: his work is not communal?—Yes; that is non-communal.

49,163. *The Raja of Parlakimedi*: On the first page of your proof you suggest an investigation into the indigenous methods of cultivation. May I know what machinery you propose to do that?—Personally I do not believe there is any scientific truth behind their superstitions, but there is a belief among the people that there is some science, and I would like the Agriculture Department to undertake the investigation.

49,164. *Professor Gangulee*: It is a store-house of empirical knowledge. —Yes. I think some investigators should find out if there is any truth behind them; if not, they should tell the people plainly that they are suffering loss on account of following those superstitutions. Nobody has thought of it yet. There are some hundreds of these superstitions. There is a superstition that if you plough your field on a particular day, then you will have a better crop. It cannot be true, but they have to be told so by the Agricultural Department.

49,165. *The Raja of Parlakimedi*: Do you not think that it had better be left to some non-official agency?—Yes; perhaps a non-official agency would be better, but in the absence of that the Sarkar as the *ma bap* should take it up. Some of these sayings are published in the Agricultural Almanac which is published by our Agricultural Department with a view to give the agriculturists some knowledge about improved methods in agriculture and co-operation. The almanac was first published by a District Board, and to-day it is published by the Agricultural Department. It is used as an ordinary almanac, but here and there information is given about improvements in agriculture, co-operation, &c.

49,166. *Professor Gangulee*: Do you distribute this almanac?—Yes; the cost price is three annas, but we give them to the cultivators for one anna.

49,167. *Mr. Kamat*: It is stated here that if there is rain in the *Barani nakshatra*, the husband will be forsaken by his wife?—Yes.

49,168. *The Raja of Parlakimedi*: How long has this practice been in existence in the Baroda State?—It has been in existence for centuries, not only in the Baroda State but also in the whole of Gujarat.

49,169. Your idea is to dispose of such superstitions?—It is being done in Baroda only for the last 10 or 12 years. I do not know if it is being done elsewhere.

49,170. Later on you say that when the Agricultural College was started in the State, the students came forward only in expectation of appointments. Was it due to love of appointment or due to the circumstances in rural areas?—Sir Thomas Middleton was Professor at the Agricultural College, and he knows it. When we started the college, most of our students were non-agriculturists, and some of them are even now in the Baroda service. When we ceased giving posts to these men the classes became empty and the college had to be closed.

49,171. *Professor Gangulee*: When was the college closed?—It is now 20 years since it was closed. Then we started giving instruction on farms. There also the agriculturists did not come; people of other communities came in, in the expectation of securing service. Recently we have started

giving inducements to agriculturists to come and get training in the farms: we give them their feeding expenses, and teach them something.

49,172. *The Raja of Parlakimedi*: In these rural schools you have got in the State, is practical work also taught to the boys?—It is not taught; that is my complaint. In the rural schools they teach reading, writing and arithmetic just as in the other schools; the text-books are the same. What I contend is that there should be a different series for rural areas, wherein more attention will be given to plant life, soil, &c.

49,173. In the State of Baroda, has any start been made in the way of creating such institutions?—As I said, we have been holding agricultural classes for six months in the monsoon and also for some months in the winter, where we teach sons of genuine agriculturists improved methods of agriculture and give them some knowledge of carpentry.

49,174. That instruction is given in the vernacular?—Yes; and we give them certificates of proficiency.

49,175. *Dewan Bahadur Malji*: How long has this experiment been going on?—It was begun only last year; people come from different parts of the State.

49,176. *The Raja of Parlakimedi*: Have they derived any benefit by that teaching?—Yes. Those who come have been adopting improved methods of cultivation; they are using improved implements like the Planet Junior hoe which is superior to the corresponding indigenous tool.

49,177. Are you maintaining a record of the tools used?—Yes, I have got the latest report of our Agricultural Department; perhaps the Commission would like to have it as it gives this information in detail.

The Chairman: Yes.

49,178. *The Raja of Parlakimedi*: What arrangements have you as regards grazing facilities in your State?—Every village has its *gaocharan* land. *Gaocharan* land is usually 5 per cent. of the total agricultural land; in some places it is little more, in some places it is a little less. Sometimes people ask for permission to use it as agricultural land, and therefore it is not possible to keep 5 per cent. in all areas. These *gaocharan* lands are only nominally grazing lands; at present most of them are covered with shrubs, and there is no grass there; they are only places where cattle are taken out for exercise. The present arrangement is that the State will notify to the villages that these lands shall be cleared, and if the people do not do the clearing themselves, the State will do it and recover the cost from the people.

49,179. Is sufficient precaution taken to prevent people encroaching on those lands?—Yes; there is a boundary mark.

49,180. Are they prosecuted if they encroach upon such lands?—There is no actual prosecution. If the boundary mark is changed or is encroached upon, then the revenue authorities have themselves the power to fine the people. In the case of private people, they resort to the civil courts.

49,181. May I know what interest the State takes in the improvement of indigenous breeds of cattle?—The State has been taking great interest for many years, but it has not yet achieved any satisfactory success. We tried several measures in Gujarat for cattle-breeding; people were altogether apathetic and did nothing. All cultivators have she-buffaloes, but they do not have bull buffaloes. There is a common bull buffalo which is supposed to feed itself in the cultivators' fields, but it is beaten and maimed when it does so. We now say that we undertake to give them bull buffaloes if they will undertake to stall feed them. They do not take advantage of the offer. We had some cattle-breeding stations which we have closed down. At present there is only one, at Makarpura, near Baroda.

49,182. *Professor Gangulee*: Why were they closed down?—Because the people did not take advantage of them. The cattle we brought down from different parts of the country have deteriorated. We got *Gir* buffaloes, but their milking quality deteriorated. The best method is to improve the local breeds by selection. That is being done to a small extent now, but until the people themselves take interest I think success cannot be achieved.

49,183. Who managed the cattle farms?—The Director of Agriculture.

49,184. Did you have a Live-Stock Expert?—No. We take advice from Mr. Smith, the Government of India Expert.

49,185. *The Raja of Parlakimedi*: As regards preventive measures for contagious diseases, do you insist upon your veterinary officers maintaining a record of the work done?—Yes.

49,186. Where do you get the serum that is necessary?—From Muktesar.

49,187. *Professor Gangulee*: Do you pay for it?—Yes.

49,188. *The Raja of Parlakimedi*: Is the work done in that line increasing every year? What does the comparative statement show, decrease or increase?—Whenever there is an epidemic it happens that we are not able to get sufficient serum, and then there is also the lack of men for its distribution. But for ordinary purposes I think the arrangement is quite satisfactory.

49,189. Do you think that it is getting more and more popular among the people?—I think so, because the people have already realised its benefits. In fact, when an epidemic breaks out, the people at once write a postcard to the nearest veterinary officer to go over to their village; this is in accordance with the instructions which we have given to the villagers, and we find that they are taking advantage of it.

49,190. With regard to irrigation, can you say what arrangements are made by the State to maintain all irrigation sources in order?—The State irrigation tanks are maintained in order by the State. There are about 20 big tanks which are managed by the State. The rest, which comprise a a great many small tanks, are maintained by the Panchayat who are expected to look after the distribution and also the repairs.. As regards the wells, each owner or cultivator looks after his own well.

49,191. Are the people given sufficient facilities to create local irrigational sources?—Only with regard to wells we give them *taccavi*, we also give them borers. Where the water is not of good quality or where it is not sufficient, we encourage the people to have borings for which we pay. If the boring is successful we charge the cultivators, if it is not we do not make any charge for it.

49,192. Supposing a group of villages approach the State for the creation of a channel to irrigate their fields, and suppose they also propose to bear all the cost, then what is the order on such an application?—We have not received such an application, but without State help nothing can be done, because the land has got to be acquired under the Land Acquisition Act.

49,193. But if they were financed would they receive any consideration? —We should be very glad to acquire the land for them.

49,194. And no additional charge for improvement is levied?—No improvement effected by the cultivator will be taken into consideration in Revisions at any time.

49,195. *Professor Gangulee*: That is the theory only? What is the actual practice?—In our Land Revenue Code, as also in the Bombay Code, there are sections to the effect that improvements made by the landowner at his

own expense shall not be taken into consideration in fixing the revised assessment, but that any improvements that have been brought about without any expense on his part, by a general improvement in conditions due to the introduction of new roads or markets or to the raising of prices, will be taken into consideration.

49,196. *The Raja of Parlakimedi*: Is it strictly adhered to in practice also?—I think it is and ought to be. Sometimes we receive complaints from the people to the effect that an improvement which has been taken into consideration in fixing reversed rates had been due to their spending money themselves, but when we have investigated these complaints we have found them to be untrue.

49,197. *Professor Gangulee*: I think you said that you have a department in your own State known as the Development Department. Could you tell us something more about that department?—The Development Department consists of the Agricultural Department, the Co-operative Department and the Commerce Department. The heads of these three sub-departments are placed under one officer, who is called the Director of Commerce and Development Officer.

49,198. And he has a special fund for carrying out any project?—He is practically the head of these departments; he sees that the work is co-ordinated and that they get all the facilities and sanctions from the Government.

49,199. His post is something like that of the Development Commissioner in Burma?—Yes, and he is also in charge of ports; we have one port in our State.

49,200. There is no separate budget allotted to these departments?—Yes, there is.

49,201. Since when was this Development Department started?—Since 1917; the official designation of the Development Officer is *Pragathi Adhikari*.

49,202. Would you agree that there are numerous social obstacles in the way of rural betterment?—Yes, there are.

49,203. And you consider that a change in the social outlook is necessary?—Yes.

49,204. In your note you state that the co-operative movement is a purely economic movement. I do not understand why you consider it a purely economic movement?—Yes, it is economic; I have suggested that there should be more men from the villages associated with this movement; at present the movement has people from outside the village, and my point is that gradually they should give place to the villagers themselves, from among whom local leaders should gradually be created.

49,205. But would you not agree with me that in this co-operative movement there should be ample scope for general advancement, and that both social and economic questions may be combined in a co-operative movement?—Yes, there should be no objection to that, I think.

49,206. I think some time ago His Highness started an organization to popularize village libraries. Could you tell us about its progress?—We have, in the Baroda State, the Library Department which is doing very excellent work. We have a Central Library at Baroda, and we have got district libraries in almost all the big villages and towns. There are about 800 village libraries, 50 urban libraries and one Central Library. In addition to that, we also have circulating libraries which are in the charge of the Secretary to the Co-operative Society or some social worker who undertakes the distribution of books and also sees to their return. This system has been the means of keeping alive the literacy of the villagers. Village life is so dull, and there is such an absence of literary life, that this library department has helped to keep alive the literacy of the village people.

49,207. So that this movement has been very successful?—Yes.

49,208. Are these library books mostly in the vernacular?—Yes.

49,209. Do you have scientific books in the vernacular?—We have started two series for the spread of scientific education in the vernacular, and in addition to this we also obtain books from Poona or Bombay.

49,210. With the expansion of those village libraries it will be necessary, I presume, to have sufficient literature in the vernacular?—Yes; we are creating that literature by setting apart two lakhs of rupees, the interest on which is spent every year in the publication of books of popular size.

49,211. With reference to this question of training village leaders, it is not quite clear to my mind how you would go about it?—I would hold classes in the headquarters of the district or even in the talukas and have lectures given to those leaders by men of the Agricultural, Sanitary and Co-operative Departments.

49,212. Has anything been done in the departments under the Development Commissioner?—Yes, we have started it there; we have a regular programme laid down for this; our difficulty is that we do not get a sufficient number of men to attend.

49,213. Do you find that these lectures have produced any healthy change amongst the young men?—Yes, we find that the college students when they go home for their vacation like to do this sort of work.

49,214. I see that you attach some importance to social and economic surveys. Have you a special department carrying out such surveys?—The Development Department has done two surveys on the lines laid down by Dr. Mann in the Deccan villages.

49,215. And you consider such surveys are necessary for formulating the programme of your policy?—Yes.

49,216. In answer to the Raja Sahib you said something about cattle breeding societies. It is not clear to my mind what led to the failure of the cattle breeding farms that His Highness had started?—Lack of zeal and knowledge on the part of the persons in charge and lack of interest on the part of the public. We have only got one cattle dairy farm at Baroda now, where we keep about 150 cattle of different kinds. In fact we have been experimenting there; the old good breeds are practically extinct, the Kankrej bulls and cows are not to be found. We are trying now to evolve that old species by experiment.

49,217. You say in your note that systematic breeding will not pay?—What I suggest is that the breeding should be looked after by the co-operative dairy societies. In my opinion, if we can start co-operative dairy societies, this would be a means of improving the dairies and also cattle breeding, which would be to the interests of the societies. I would ask Government to pay all the money which they are now spending at the central dairy farm to the co-operative societies.

49,218. Are you satisfied that the breeding farms that were started by His Highness were run on scientific lines?—They were not, and that is why they failed. I would leave this work to the cultivator himself; unless he looks after his breeding my opinion is that there is not much chance of success.

49,219. *Sir Henry Lawrence*: What farms have the Baroda Government established for breeding cultivators' cattle?—We had the Baroda farm.

49,220. How many cattle were there in that farm?—There was only a herd of about 40, but it has increased to about 200, I think.

49,221. *Dewan Bahadur Malji*: Do you refer to the Makarpura farm?—Yes.

49,222. *Professor Gangulee*: In answering our question on *taccavi* you say that the Government system of *taccavi* loans can never be adequate and

is, in addition, highly demoralising, and the private village financier has outgrown his usefulness. Why do you say so?—Because the accountant and cashier want some indulgence. The cultivator does not get the whole thing. The Government is not so elastic as the *sowcar*, who can give time.

49,223. *Mr. Calvert*: In your proposals to control moneylending, you are following very closely the clauses of the Punjab Bill?—Yes.

49,224. And, when you suggest that no man be allowed to lend money without a licence, you are thinking of registration of moneylenders?—Yes. Of course, there are difficulties.

49,225. If the law enacted that a civil court should not take cognizance of any claim for money lent unless the lender had been duly licensed, would it be sufficient?—That would be very hard, because there may be cases where money is lent without a licence. I would make this specially for agriculturists, people who follow agriculture as a profession, not the general *sowcars*. For agriculturists I would have this system of licensing for some years.

49,226. In England that applies to all moneylenders?—Here also the Usurious Loans Act applies to all moneylenders. I think we have also got in our State, an Act to prevent usurious practices.

49,227. The civil court cannot hear the case unless the lender has been registered. Do you think it would work out here?—If you enact a law and execute it, it would be possible. Probably it would create some hardship.

49,228. On whom would the hardship fall?—On the *sowcar*.

49,229. You say that further sub-division has been prevented?—Yes, because formerly the limit to which the revenue authorities could sub-divide a farm was one bigha and a half for *jirayat* land and half a bigha for *kyari* land. In addition to this recognised minimum, the people privately also sub-divided. So we said: "This is not good; let us fix a minimum below which no sub-division can be made by the revenue authorities." We have now raised the limit in the case of dry *jirayat* lands to 8 bighas, in the case of *bagayat* lands to 3 bighas, and in the case of *kyari* lands to 1 bigha. Below this no division can be made. If a man has five sons, and his land is 10 bighas of *jirayat*, 4 bighas of *bagayat* and 1½ bighas of *kyari* land, there can be no division, because the law says that no division shall be allowed if any of the divided pieces is below the standard I have mentioned.

49,230. *Sir Chunilal Mehta*: That is to say, you will not register it?—We will not register it. But this is not sufficient. We find that the civil courts would recognise the ownership of land smaller in area than I have mentioned. So we have prepared a Bill, which is now before the Baroda Assembly, in which we say no deed of partition will be registered unless it is with regard to land of the recognised size. If it is not registered no ownership is passed, and the civil courts will not then recognise the partition.

49,231. *Mr. Calvert*: Suppose a man, in spite of that law, does partition his land, what happens?—Then the partition will be useless. It will not pass any property to the person who gets the share.

49,232. Suppose he has five sons, and these five sons among themselves divide the property, what happens?—The Revenue Department would not register the partition, and none of the sons can go to the civil court and say it is against the law. They can auction it amongst themselves and divide the sale proceeds.

49,233. It is not shown in your record of rights?—No; we do not recognise partitions below the limit.

49,234. Your record of rights will cease to represent the actual facts?—It will not represent the actual facts.

49,235. That is to say, the effect of your law will be to falsify your record of rights?—Yes, that will be the result.

49,236. The system, as I understand it, does not actually serve to prevent sub-division; it only serves to detract from the value of your record of rights?—Yes. It will be so till the other Bill to which I have referred is passed.

49,237. The record of rights ceases to be correct?—Yes. If the sharer, however, went to a civil court to have his share, he would not get it.

49,238. Brothers do not quarrel among themselves so much?—There is nothing to prevent them from sub-dividing below the limits in the law. Even under the old limit they used to sub-divide.

49,239. Practically you cannot prevent sub-division? A mere law of that nature cannot be enforced?—Therefore, we have now prepared a Bill under which there will be total prohibition of partition. It will not be considered as property if you divide it; any division will be worthless.

It could still be done?

49,240. *Sir Chunilal Mehta*: That is prevented in the Bombay law. The actual cultivation of the partition is prevented; he can be turned out?—That would be very good.

It is a new law that is proposed; it is not yet passed.

49,241. *Mr. Calvert*: You say that special legislation to deal with minors would be necessary, and you go on to say that all sharers in the land are bound to give up their rights. Who can give up the rights of a minor?—The guardian of the minor. He is supposed to act for the best.

49,242. He can give up the minor's rights?—Yes. In the case of a widow, her interest is only life interest. Instead of the property, she can have the money value of the property.

49,243. Can a widow with a life interest give up that right?—She can. She has the right for her lifetime. After all, that right is of maintenance for her lifetime. She cannot sell unless there is necessity, and she cannot mortgage.

49,244. You want her to give up her right?—The right will be there; it will be only in another form. Instead of the right in land form, it will be in money form. No special legislation is necessary.

49,245. *Mr. Kamat*: When you say that the record of rights of the Revenue Department refuses to recognise a sub-division below a particular minimum limit it does not falsify the state of things in the village; it only refuses to recognise?—Yes.

49,246. With regard to consolidation as a whole, a mere amendment of the Land Revenue Code, as stated by you, has failed to achieve the purpose?—We have looked at this question from two points of view. We say that the first necessity is to stop further fragmentation, for which we have this measure which has to be completed. As regards the divided parts, we must apply remedial measures to reunite the pieces that are now divided. That can be done partially or thoroughly. Partial union can be made by voluntary exchanges, and other measures of a similar kind. I have been drastic enough to propose that the right of pre-emption should be applied to agricultural land as it is applied to *gamthan* lands. For instance, no agriculturist could sell to an outsider unless he had obtained the first refusal from his neighbour. We have passed a permissive Act that where two-thirds of the landholders of a village agree to a re-distribution it should be done. But we have not yet found two-thirds coming forward to apply.

49,247. In the first place, your opinion is that voluntary exchange is not successful. You have the example of foreign countries, you say, where it has taken 60 years to bring this about?—On a voluntary basis, it may take more than 100 years.

49,248. To come to your permissive Act, you agree that legislation is necessary, but the point which I am raising is this: is permissive legislation

of any good?—That has to be seen. If permissive legislation fails, then we might have compulsory legislation later on.

49,249. That is exactly the point on which I want your opinion?—I would go to the length of saying that there should be compulsion. I would even say that Government should acquire the land of the village and redistribute it into economic holdings.

49,250. Take the analogy of the Bombay Presidency. When we passed a permissive Compulsory Education Act in 1918 it practically failed because it was permissive. Very little good came through that Act. You have introduced, you say, a permissive Act in the year 1920. If it has been really effective, may I know how many villages have been consolidated during the last six or seven years?—Not even one, because we have to satisfy ourselves that 66 persons out of 100 are in favour of such action. We are prepared to ignore the wishes of one-third, but not more than one-third. If we find that, after proper propaganda work and after proper persuasion, this Act is not operative, I would advise Government to go to the length of either reducing the proportion to 50 out of 100 persons, or make it compulsory.

49,251. You admit that a permissive basis is of no use, and that during the last six years nothing has been done?—I would wait for five years more. I would engage people to do propaganda work, to tell the people how much they lose according to their present custom. That has to be driven into their minds.

49,252. On the question of consolidation, mere generalities do not help us much. I should like to have some details. You have suggested two means of consolidation, a re-arrangement on the principle of economic units and a re-arrangement on the basis of original ownership, and you say that the latter method, re-arrangement on the basis of original ownership, is the preferable method?—Yes. What I mean thereby is that it will create the least resistance. When people think that they will lose their lands they will oppose, but when they find that they are not to lose anything, but will have a new piece of the same area instead of the different pieces held by them, they will fully agree.

49,253. I should like you to study this thing a little closer, and tell me how, logically, the latter thing is the more preferable one. The whole object is that the smallest holder, who cannot do agriculture on a small piece of land, must go out?—Yes.

49,254. But you want to retain the original ownership for each and every man in the village?—For the present.

49,255. Is that logically possible?—It is a question of expediency. I look at it from the point of view of expediency. I say that if we base our reconstruction on the basis of an economical unit, then there will be difficulty in fixing what the economic unit should be. It will not be the same everywhere. It may be 20 acres in one place and 50 acres in another. For the present, let us prevent the harm that is being done by small fields. Of course, the other method would be preferable and more beneficial, but for the present we want to give as much benefit as possible, so that the people will be induced to accept it.

49,256. But just as the permissive principle is almost bound to be futile, similarly is not this attempt to give even the smallest holder, if he is the original holder, some piece of land, also likely to be futile?—Not futile; it is a distinct gain to have three small pieces united in one field. Suppose a man had half an acre on one side of the village and three-quarters of an acre on the other side, if instead of that he has 1¼ acres in one place, I think that is a distinct advantage: he can sink a well and produce vegetables, and so on. I do not say it is the ideal economic holding.

49,257. It is not only not ideal; it may be idle to attempt it?—That is a matter of opinion.

49,258. If you distribute, say, 2,000 acres of land on the principle that each man must have, say, 5 acres, you cannot distribute the land on a 5-acre basis and yet follow the principle of giving each original holder something?—Why not?

49,259. The principle of not giving below 5 acres is violated?—There are two principles: the principle of the economic holding, and the principle of ownership. Here we find that land is considered to be so valuable that a man does not care to part with his land, because if there is no land his son probably would not get a bride; if land is valuable nobody cares to lose his land. If you adhere to the principle of the economic unit you would have to discard all those men whose land is below the economic unit.

49,260. You want to follow the line of least resistance?—Yes, expediency.

49,261. You said you have a bone-meal factory in Nadiad?—Yes.

49,262. Is it conducted by Gujarati gentlemen?—By *patidars*.

49,263. Which shows that, in spite of caste prejudice, there is hope that people will take to factories of this kind even in a so-called orthodox Province?—Yes, they are realising the benefits.

49,264. *Professor Gangulee*: If it pays, the caste prejudice disappears?—Yes.

49,265. *Mr. Kamat*: In another place you have suggested standardisation and grading by legislation?—Yes; I would not have any agricultural produce of this country exported elsewhere, which might create a bad impression.

49,266. How would you introduce legislation to standardise and grade, say, wheat or cotton?—The grains should be of the same size and the cotton should be of the same staple.

49,267. I mean who would enforce the legislation?—Government.

49,267A. Yes, but you do not want a special staff?—It would be enforced just as they enforce the Cotton Transport Act.

49,268. No specially trained staff would be necessary to determine the grade of wheat or cotton or anything else: an ordinary man can look at it and say it belongs to such and such a grade?—The Agricultural Department can fix the standard.

49,269. And this would not go against the principle of following the line of least resistance?—No.

49,270. *Dewan Bahadur Malji*: Would you not leave the grading to the Taluka Development Association?—I should be very glad to do so if they can take it up. I believe in co-operative societies; they can do wonders; but more and better societies are required.

49,271. You would even prefer the associations of merchants such as obtain in Bombay?—Any effective agency would be welcome.

49,272. So that this sort of thing is quite possible without legislation?—Yes.

49,273. You seem to think the grazing area in the village is neglected?—I think so.

49,274. And much of the grass is wasted?—There is no grass at all; there are bushes.

49,275. Wherever there is any, it is wasted, in the sense that there is no proper division or rationing between the animals in the village?—Yes.

49,276. Do you think it would be a good thing to store the grass in the village, and then give it out through the village agency to the various people who have the right of free grazing?—All that *bir* land is cultivated now.

49,277. Do you think the cutting of grass is done at the right time?—That depends upon the farmers. You do not have grass all of a particular kind; there is so much impurity; it is all mixed up.

49,278. In fact, generally no care is taken of the grass?—No.

49,279. That is a factor that increases the difficulty of maintaining cattle?—Yes.

49,280. Have you devised any means of removing this difficulty to any extent?—We tried co-operative grass societies, but unfortunately we found that the zeal of the people who came forward to store their grass co-operatively failed, and for two years they did not come forward, in some places. Elsewhere we tried pit silos.

49,281. How did that work?—It was done in the beginning, but the storage was very small, and on the next occasion they said they had no grass.

49,282. Do you carry on experiments of that kind at the farm?—Yes, we have about six pit silos. On opening the pits we find the grass is very good; it is appreciated. We show these experiments to the cultivators.

49,283. What area of dry land is necessary to maintain a family of three persons?—That depends upon the land; if the land is of good quality I think 10 bighas would be quite sufficient.

49,284. And if ordinary quality?—20 bighas.

49,285. Do you think a cultivator can keep himself on the produce of 10 bighas?—Yes, if he takes full advantage of the 10 bighas, has good irrigation facilities and can take two or three crops.

49,286. So that a subsidiary industry is absolutely necessary to maintain the agriculturist?—Absolutely; there is so much spare time. If co-operative societies could provide the raw material and take the finished product, we could have more subsidiary industries in the form of weaving, embroidery, and so on.

49,287. Agricultural education not being properly imparted from the beginning, do not you think interest in agriculture is lost?—It is; in fact, it is sometimes considered a shame to follow agriculture, though our saying is that agriculture is best, commerce is medium, service is worse, and begging is still more shameful.

49,288. An attempt was made in Baroda College to impart agricultural education, but that was wrong because no attempt was made to impart agricultural education at the lowest rung of the educational ladder?—No, in fact, they should not have started a college course in agriculture in the circumstances.

49,289. The net result of the present education is not in any way encouraging agriculturally?—I had a conversation with some of the graduates turned out by the Poona Agricultural College; I asked them: "Why do you want service? Why cannot you follow agriculture?" They said: "We are quite willing to do so, but where can we get the capital and land; if Government or any other agency can give us capital and land we are quite willing to follow agriculture." Unfortunately it is very difficult for them to find capital; if the Commission can devise some means of getting these graduates land it would be a good thing.

49,290. Could not they rent land?—No, there is the difficulty that the fields are small and scattered.

49,291. Do you find there is sufficient associated action?—We have started some agricultural associations, but I think they are more or less official associations; they are associations started with the idea of pleasing the District Officer who starts them.

49,292. People have not learned that lesson sufficiently; they require to be educated in that direction?—Yes.

49,293. You say in your note that there ought to be intensive cultivation, use of organic manure, levelling and draining, and rotation of crops. Have any attempts been made to show that those things are possible in your part of the country?—Yes, the Agricultural Department go to the cultivators and ask them to try an improved method and compare results. We sometimes give a guarantee that if by following our method there is a loss, we will make up the loss, while if there is any extra gain it will go to the cultivator. In my opinion that has done more good than any amount of demonstration on the Government farm; demonstration on the field of the cultivator is not merely an object lesson to that cultivator, but to the whole village. We require more demonstration of that sort.

49,294. *Professor Gangulee*: Is that the method you follow?—We have followed that in a few cases, not very extensively.

49,295. *Dewan Bahadur Malji*: Do you not think the tendency of the present phase of modern industry is to encourage high prices of the products of the fields? Every seller is after high prices, but does he take sufficient care for the quality?—No, that is the most unfortunate thing; there is of course competition in regard to prices, but nobody cares for quality; it is very essential that care should be taken of quality.

49,296. Do you find that, as there are not sufficient lands for cultivation, agriculturists have to pay higher rents?—I would suggest a Tenancy Act; landlords go on increasing rents from year to year and the land is getting poorer because the cultivator is not sure he will not be evicted; at any time he may find himself charged Rs.15 instead of Rs.5.

49,297. So that you would welcome legislation against rack renting?—Yes.

49,298. Would you welcome the organisation of labour? In some parts of the country there is spare labour while in other parts labour is in great demand; do you think a labour recruiting officer should be appointed so that labour could be transferred where required?—My idea is that labourers generally do not like to leave their own homes; they may go temporarily to a ginning factory or some other place, but the ultimate abode of the labourer is his own home; but I suppose migration will be necessary.

49,299. During the idle months do you not find men coming in from other places for a few months?—Yes, but only for a few months.

49,300. I want to ask you a question about the system of land tenure. Have you got *bhagadari* and *narvadari* tenure?—Yes, in some villages.

49,301. In Petlad taluka, do you think you have been able to do away with the system of *narvadari* tenure?—Yes. Under the *narvadari* system, the *narvadar* has responsibility, but no rights. The leaders had to give the assessment for the whole village, but they were not able to recover it from the villagers. Those who wanted to do so have abandoned their *narvadari* tenure and taken to ryotwari.

49,302. The *narvadari* tenure was an impediment to credit; was it not?—I am a *narvadar* myself, and I may state against my own interests that that system should go. Under that system the *narva* can only be sold to a *narvadar*. When the number of purchasers is small, the value of the land is diminished. If my property is sold it can be purchased only by other *narvadars* and not by outsiders.

49,303. Therefore, unless you hold the whole *narva* there is practically no asset to count upon?—Yes.

(The witness withdrew.)

The Commission then adjourned till 10 *a.m. on Monday, the* 28*th March*, 1927.

Rao Bahadur Govindbhai H. Desai.

Monday, March 28th, 1927.

BOMBAY.

PRESENT:

THE MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir JAMES MACKENNA, KT., C.I.E., I.C.S.	PROFESSOR N. GANGULEE.
Mr. H. CALVERT, C.I.E., I.C.S,	Dr. L. K. HYDER.
Raja SRI KRISHNA CHANDRA GAJAPATI NARAYANA DEO OF PARLAKIMEDI.	Mr. B. S. KAMAT.

The Hon'ble. Sir CHUNILAL V. MEHTA, Dewan Bahadur A. U. MALJI (*Co-opted Members*).

Mr. J. A. MADAN, I.C.S., Mr. F. W. H. SMITH (*Joint Secretaries*).

Mr. G. K. DEVADHAR, Provincial Co-operative Institute, Bombay.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH.—(*a*) It is perhaps a truism to say that any serious attempt at the improvement of the life of the agriculturist, without the help of correct knowledge of the conditions and environments in which he lives and the social and economic factors that govern his conduct, would be likened to making bricks without straw. It is, therefore very essential that schemes for the betterment of the lot of farmers must be well thought out and based upon correct and reliable data carefully and scientifically collected by workers trained in that line and having a heart in the work. There is even now much valuable information gathered by many departments of Government, but it is scattered and not collated by any analytical and synthetical processes. Under such circumstances what is needed is the existence of a special machinery. It is therefore suggested, for the purposes of investigation of the various problems affecting agriculture and agriculturists, that an institution of the type of a "*Board of Rural Economic Enquiry*" should be formed in each Province. The advantages of such a machinery to Government and to the people are too obvious to need any further comments. In our opinion this fact alone should provide the justification for the necessary expenditure which need not be considered a burden in any sense. To grudge such an expenditure and to be prepared to spend large sums of money on schemes professedly undertaken to profit the agricultural population would, in my opinion, amount to putting the cart before the horse.

Such expenditure would be a profitable outlay as it is sure to lead to further efforts on the part of the public and would result in much economy in the long run. Moreover, if under the direction of a body of experts, on which will work both officials and non-officials, systematic and sustained attempts be made to collect the kind of data that have a direct bearing on the agriculturist's life, and the problem of his poverty which eats into the very vitals of that life, and to guide research towards that end, very fruitful results would be achieved and the way would be further paved for a proper study and survey of the various questions that cry for solution.

Till such a Board, however, comes to be formed, I have a suggestion to make: Most of the departments of Government do publish valuable statistics that throw a great light on these problems. Their staff could be replenished and specific data, which are at present either collected or published, could be obtained with the help of their vast network of the administration. What is required specially are specific direction and love of labour.

Government departments can collaborate their labours with non-official bodies like our Institute, which has attempted such investigation, and which would gladly undertake more, provided, however, special grants be made to it by Government, and the assistance of the departmental officers be ensured. The Institute, however, having undertaken such work from the co-operative point of view in this line in the past has now definitely approved of the policy of such economic inquiries in important tracts, and should more funds be made available to do it, it could start co-operative economic surveys with the assistance of its district and divisional branches or institutes in some of the most important tracts in this Presidency which have problems of their own crying for solution. If Government would take proper advantage of the enthusiasm of non-officials for such work, such mutually helpful endeavours would afford a partial solution of this problem of great and vital importance to the agriculturists of the land.

QUESTION 2.—AGRICULTURAL EDUCATION.—The problem of education of the children of the agriculturists is engaging the attention of Government and public workers alike; and its inadequacy and unsuitability have provoked a good deal of well-meant criticism.

(i) There is no doubt that having regard to the fact that the greater proportion of our population is composed of agriculturists, surely not less than 70 per cent. of our total population, the provision that is made for the education of their sons and daughters is too meagre to need any very elaborate comments.

(ii) Judging from the figures in this Presidency, excluding Sind, we find that for such a vast population we have one Agricultural College with only 184 students; 6 agricultural vernacular schools with 169 pupils getting scholarships of Rs.5 each. It is interesting to note in this connection that some of these schools have been in the beginning assisted by generous donors and public bodies that have paid large contributions. There are, moreover, 18 agricultural classes attached to higher primary schools with about 365 pupils. It would be very difficult for anybody to say that this provision for the education of the children of the agriculturists is adequate. It may also be observed, further, that no particular attempt has been made to educate the daughters of the agriculturists to make them better wives. I am, therefore, strongly inclined to advocate an increase in the number of agricultural schools and agricultural classes of the primary type, adding to the present number of teachers in due proportion. Moreover it is really interesting to note that the Report of the Department of Agriculture for 1924-25 expresses great satisfaction with the working of these schools. It further states: "the schools are becoming popular and there seems a very strong feeling in many District Local Boards and elsewhere to extend their number . . . ." One finds it hard therefore to explain why such an essential need of the vast agricultural community should have come to be neglected when, truly speaking, the welfare of the agriculturists and their prosperity supply the basis for national, social, and economic, progress of the country.

(iii) Though there may be some advantages in having teachers for such schools drawn from rural parts, I would not exclude others provided they are fit and feel enthusiasm for their job. Such teachers need special

training as they will wield considerable influence in these parts and are expected to give a good lead to the village people in their dealings with each other.

(iv) The figures of pupils, quoted above from the Report, show that the attendances are not numerous and these will not improve unless better teachers, more schools, better methods, better equipment, more scholarships and large pieces of land for experimental cultivation attached to the schools are made available by Government. It is clearly stated in the Report that there is genuine demand for more schools. Sources of local help available could be tapped very tactfully. The District Local Boards could do much in this line.

(vii) The courses of study should include apprenticeship, arranged with the help of the department, on large and well-managed private estates or farms, as I think such an arrangement would be mutually beneficial and would render such instruction practical and tend to ward off criticism. Even the Degree course and an intermediate course (a link which is missing in the chain) and the primary course should make room for such a system; and ample facilities should be provided to those undergoing this apprenticeship.

(viii) I would advocate the inclusion of the study of agriculture or carpentry or smith work as an alternative subject in the course of instruction in vogue for high schools; a large number of these are now being established in the heart of rural areas and they attract no small number of boys of well-to-do agriculturists. Government can make grants-in-aid to private high schools for such extension in the interests of the agriculturists. This would tend to induce the children of the agriculturists to keep up their pursuit of such study at a further stage, viz., the Agricultural College. In fact from the village school with agricultural bias to the Agricultural College there should be a regular chain with these various links. Moreover, as the co-operative movement is likely to prove a powerful fulcrum in the development and improvement of the agriculturist's life, we are of opinion that the study of the principles of co-operation and its theory and practice should be given a distinct place in any scheme of education that is designed for the children of agriculturists. Study of banking and rural economics would also be a welcome addition.

(xii) *Adult Education.*—The question of the education of the adults in rural areas is no less complex or difficult to solve than that of their children. But as it is likely to play a very useful part in the development and progressive growth of the agricultural industry, its solution must be attempted at any cost. Investment in education, whether of children or of adults, whether of boys or girls, brings sure returns. The first difficulty in this direction is the lack of tradition and the second is the unattractiveness of the methods of education. If interest be created by suitable methods, even adults, who would ordinarily abhor the idea of being pupils, will take kindly to the acquisition of useful knowledge, but it must be imparted without much formality. What the adults would value first is useful and entertaining knowledge which could best be imparted with the help of their eyes and ears. They may shun literacy in the beginning, but knowledge will have its powerful influence operating; when once the taste of knowledge is created in their minds, they would themselves demand entrance into the portals of the temple of learning through the doors of the three R's. Courses of adult education should be begun by means of songs, pictures, lantern lectures, cinema films and educational excursions. Adult education does not necessarily require night schools, though a certain amount of schooling will be necessary to steady the influence of education imperceptibly imbibed by the adults.

Moreover, it has to be remembered that a smattering of the knowledge of the three R's would involve a fearful waste of time and money if

such efforts be not kept up by continuation work, by means of libraries and courses of lecture, and suitable literature. Many attempts at teaching adults by means of night schools have failed in many places, because the adults were treated by their teachers as pupils and were required to go through the same tedious process of book lessons and slate lessons. After a hard day's work they get tired, and if there be no incentive to entertainment, brighter life and social merriment, they would not feel genuinely drawn towards such schools. The first step in teaching adults is to attract them to a general talk which they can enjoy; visual instruction would be very useful as it would open to them large vistas of knowledge of every-day use. In the programme of education for co-operators the education of the adults occupies a place of distinct importance. As the success of the co-operative network to-day depends upon the trained intelligence of the advanced co-operators, the leaders of the co-operative movement would be taking a very important step to strengthen its foundations if they could devote a part of their time and energy to working out a scheme of adult education. If once the adults could be made to realize the benefits of education, which was denied to them, they themselves would readily come forward to make the necessary sacrifice for their children. I have seen many adult co-operators, being ashamed of their illiteracy, come forward to promote education among their children.

I would not neglect the education of women in this scheme of education because women play no less conspicuous a part in improving the rural economy. For the better organization and conduct of this important branch of education, the School Boards will have to provide teachers with the necessary missionary spirit. These must be specially trained for such work under one or two capable Inspectors, who would avail themselves of the help of the enthusiastic non-officials to promote such activity. Agriculturists can be induced to pay small sums for the benefit they derive. Generous donors, like the late Sir Vithaldas D. Thackersey, could occasionally be found to supplement local bodies' efforts.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) Exhibitions and shows of agricultural methods and products accompanied by field demonstration have so far been found of great use in making agricultural improvements possible. In this connection I would strongly advocate the adoption of the American method of demonstration, which I am glad to find has been recently copied in Eastern Bengal. Several departments of the Bengal Government closely associated with the improvement of agriculture and the agriculturists have been able to persuade the Eastern Bengal Railway to form a special train with a large number of carriages. The train stops in the siding for one day at each important town on the line. The carriages are equipped by the various departments with their material of instruction or demonstration. There is in charge of each carriage a trained lecturer to explain to the people that are called to visit the train the new methods and their results, and to give talks to the agriculturists dealing with their varied needs. This *Demonstration Train* is sure to prove a powerful attraction and is calculated to heighten the value of demonstration and propaganda. I am told that such attempts have proved successful in Baroda State. Railways in other Provinces should vie with each other in assisting this method of popular demonstration and should afford necessary facilities to make it a success.

(*b*) The most successful way of making field demonstration attractive would be to carry out the experiments in new agricultural methods or crops on the lands of cultivators themselves, who on being convinced are sure to carry on propaganda themselves. As far as practicable big and centrally situated villages should be selected as this should prove the best form of advertisement. Such attempts could be made with the assistance

of the taluka development associations, which have slowly begun to take root. There are to-day more than 48 associations, and they are being assisted by Government with monetary grants in the neighbourhood of Rs.25,000 per annum, according to a definite scale.

QUESTION 4.—ADMINISTRATION.—(*a*) and (*b*) In the opinion of the Institute, Provincial Governments should be encouraged and assisted by the Government of India to carry on their special activities in promoting scientific knowledge for the development of agriculture; but it is also felt that such activities, being very costly in their nature, would be beyond the limited resources of several Local Governments and the Government of India; therefore they should themselves maintain certain institutions, engaging a staff of experts, preferably Indian, and wherever it is possible to pool their services it should be attempted in the interest of better research and education.

(*c*) (i) These departments could certainly do more useful work, as has been the experience during recent years, provided, however, the definitely accepted policy of co-ordination in using more vigorously the co-operative movement in a spirit of greater friendliness is carried out wholeheartedly. Co-operation is the great ally of agriculture and so are its various ramifications along the line of credit and non-credit development. It should, therefore, be ungrudgingly availed of by both these departments. The co-operative movement is trying to make more money and material available to the members of societies with the sole object of their improvement, and the more such agencies are utilized by the Agricultural and the Veterinary Departments in furtherance of their mission the greater will be the success achieved. The co-operative societies are the forerunners that prepare the ground; they are in a way the sappers and miners that clear the way for the uninterrupted march of agriculture. I am making these observations here because I have heard complaints of want of sympathy and appreciation of difficulties. If these departments would work hand in hand without caring much for the definite share of credit, they stand to claim a larger share of it. If this policy yields good and abiding results, the credit would go to all, but, if otherwise, the results would be poor and work would suffer.

Moreover, in order to bring their advice to the doors of the cultivators, members of the subordinate staff should be given greater facilities for travelling.

(*c*) (ii) India is well known for its backwardness in facilities for the quick inland transport of agricultural produce. There are many areas like Konkan and Kanara, where people are crying for railway facilities; and in others there is a demand for additional ports. Besides, a more liberal policy on the part of those that control the railways and steamship lines is demanded with a view to making agriculture more paying to the farmers. It is even suggested that the railway companies and steam navigation companies should grant special facilities to agriculturists when they travel on particular occasions to attend agricultural and co-operative conferences and exhibitions. Such a policy is sure to benefit these commercial concerns in the long run. This is not a novel proposal as it has already been adopted on several occasions for similar purposes; what the public would like to see is that it is adopted as a definite policy. Railways extend Christmas concessions and run race specials. From my experience of three or four public activities of a wider nature, carried on in the interest of the masses and the agricultural classes, I am constrained to observe that this point of view does not easily appeal to the orthodox railway authorities. If only they could show more imagination, the railway and other similar administrations would be more popular. They ask

how it would benefit the administrations of railways; the answer is simple. The prosperity of the masses would enrich them, and our honest belief is that they would not only not lose in this way, but would on the contrary make more profits. Let them try!

(*c*) (iii) The roads in the interior are not only in many cases in frightful condition so as to be worse than useless, but in rainy seasons they are impassable. Some of them are not now capable of bearing the heavy strain of big lorries; bridges need strengthening to enable agriculturists to carry their goods in larger tonnage.

QUESTION 5.—FINANCE.—(*a*) The existing sources of credit have proved detrimental to the position of agriculturists as a class. No doubt the village moneylender affords credit for agricultural operations, but he demands his own price for it, providing therein a large margin against possible risks involved. The existing system of joint stock banks prefers to deal with traders in large centres of business and views with disfavour the financing of the agriculturist, as it does not consider it safe and easy to deal directly with the cultivator on the strength of his material assets, for want of local knowledge. The Government system of *taccavi* is limited in its application. Besides, it is found defective in many other ways and has not much charm for the average farmer.

The surest way of meeting the varied wants of agriculturists in respect of their field operations and other needs is the system of co-operative credit. If it be well organised, directed, and properly controlled, it could be democratised on the strength of personal security, and their material assets pooled together on the basis of unlimited liability. Co-operative credit could be made to secure to the farmer, by gradual steps, and after proper education on his part in its principles and practice, the necessary relief in respect of (i) short term credit and (ii) long term credit. I am of opinion that another form of credit of an intermediate character for a period ranging between five and ten years would also prove useful in making such provision. I shall deal with the question of long term credit extending over 25 to 30 years, to be provided by the land mortgage banks, in my answer to a subsequent question. There are many difficulties in the way of agriculturists in getting at once cheap, prompt and adequate credit; the only remedy to remove them is a widespread system of co-operative finance.

The co-operative societies would easily provide the short term credit. It is complained that it is not adequate and prompt, though it is recognized to be comparatively cheap. Co-operation has so far achieved fairly good results in this direction, though it cannot be claimed that it has done so in the best way possible and to the fullest extent necessary. There is no lack of capital, considering the present need of the societies within the limits laid down; but all the co-operative capital in the country to-day is not available to co-operators' needs for their agricultural operations owing to the restrictions placed on their credit. The limits that are imposed are necessary in the beginning, but with the increasing assets of members and their growing education these will surely come to be revised and raised. If solvent members show more deposits in their societies, and if the latter command a larger proportion of owned capital, their credit-worthiness will increase, enabling them to procure larger credits. Members are being trained in the correct methods of calculating normal credit and their seasonal needs. They have begun to imbibe the most useful habit of saving; self-help and joint action are the other two virtues on which co-operation lays great stress. When members of agricultural societies come to recognise their individual and collective responsibility on the basis of mutual knowledge, and look upon co-operation not merely as means of getting cheap money, but of cultivating an attitude of mind and method of living for the development of their moral side, then alone would cheap and adequate credit be easily brought within their reach. This has been the experience of many good societies in this as

in other Provinces, owing to the fundamental ideas not having been lost sight of by them in their working. Besides, to make this credit easily available and prompt, the present machinery for co-operative finance will have to be extended and its basis widened. Unlike other Provinces, co-operative finance in Bombay Presidency is left to be handled only by either the Provincial Bank at Bombay or the Central Banks at the headquarters of the districts or the societies in villages. Naturally, as the movement grows, this limited number of centres of distribution must be increased to avoid delay and loss in interest to the societies; but luckily this state of things is changing gradually. The Provincial Bank is being prevailed upon by societies outside the jurisdiction of district banks to open its branches; the district banks in some cases are undertaking to bring finance to the very door of the members by opening their branches; and what is more striking is that a definite demand is being made upon these financing agencies to start a regular network of branches at the headquarters towns of the talukas or other convenient centres in the districts. Divisional and district conferences are passing resolutions urging the custodians of the co-operative capital in their respective areas to start branches. I am personally in favour of this policy of expansion further in rural areas and the use of cheques. Such an arrangement is bound to save delays and avoid loss of interest on the part of the societies and members. Many other tangible advantages flow from this policy, but they are too numerous to mention here.

(*b*) From all accounts, the system of *taccavi* would be at once more beneficial and more acceptable to the cultivators if it were distributed through the co-operative channels. The Bombay Government ascertained the opinions of several district officials on this point a few years ago, and this is now being gradually adopted here as a better policy. It is also being advocated in other Provinces of India. *Taccavi* advances may be distributed either through the banks or the societies in the villages. The co-operative movement is now gaining much ground in rural parts on account of its varied services, and these are being directly recognized by the agriculturists, as is clear from the increase in the membership of the societies. Such cultivators as are industrious and determined to use their credit well and fulfil all their moral obligations would never refuse to join a society.

In order, however, to persuade more cultivators to take full benefit of this form of State aid, it should be made available at the rate of interest at which Government borrow money, and should pass through co-operative channels, duly controlled and supervised.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (i) Among the main causes of borrowing the following may be noted as the principal ones:—

1. In the majority of cases the uneconomic character or smallness of holdings, resulting in unremunerative business in the agricultural industry.
2. The very small or practically no margin of profit.
3. Deterioration in the productive capacity of the soil.
4. Rise in the cost of production.
5. General inability of the average agriculturist to assess correctly his needs and to frame budgets.
6. Lack of organised credit facilities and consequent insufficiency of finance.
7. Lack of facilities for joint purchase of agricultural requisites and marketing of field produce.
8. Want of suitable and seasonable supplementary or subsidiary occupations during days when the cultivator and his family have some leisure to employ profitably.
9. In arid parts of the Bombay Deccan, the succession of famines due to insufficiency of rainfall; unseasonable rains, as also excessive rain.

10. Excessive burden on the limited resources of the land.

11. Speculative investment in sinking wells in certain tracts of the Deccan.

12. Occasional onslaught of pests and diseases of cattle.

It cannot be denied that in some cases extravagant expenditure on social functions and religious ceremonies has led the agriculturists to borrow. Still, it must be noted that generally it is the better class people whose bad example is followed by the poor farmers. In their indulgence in such extravagance they yield to exactions of social or communal demands and duties.

Moreover, the poor agriculturist is often found fault with for his so-called love of hoarding; but if it be true that there is hardly any margin of profit in his business, he cannot indulge in that habit. The love of jewellery or ornaments is another point of attack. Even here if he is ever tempted to invest any of his hard earned money, he does so more by way of provision of a liquid resource to tide over difficulties than for the mere love of it. Women know full well that their jewellery will be useful to them at any moment. But this is true of a very small fraction of the agricultural population. Those that have plenty can do so, but the poor cultivator is ordinarily unable to make both ends meet. How can he afford to indulge in such luxuries when it is believed that he scarcely gets two full meals a day and has no money to supply urgent needs or amenities of social life? He cannot afford this expenditure howsoever he may wish to. It is the rich alone that are in the habit of spending large sums of money in this way, and a closer inspection of these facts would easily remove this misconception.

(ii) *Sources of Credit.*—1. The village moneylender, who enjoys credit facilities from the rich men of his caste or clan or joint stock banks.

2. Government *taccavi.*

3. Advances from middlemen (*dalals* or *adatyas*) on the calculated produce.

4. Kabulees, whose rates of interest vary from 75 per cent. to 300 per cent. in extreme cases of loans to non-agriculturists

5. Small moneylenders belonging to the agriculturist classes.

(iii) *Reasons preventing repayment.*—1. The very low margin of profit, or the unprofitable character of his business.

2. Other causes are enumerated in answer to Question VI (*a*) (i).

(*b*) It is believed that the scheme of relief provided in the sections of the Deccan Agriculturists' Relief Act XVII of 1879 is designed to lighten the agriculturists' burden of debt, and the application of the provisions of this Act will go much further than the Usurious Loans Act. An intelligent propaganda will be necessary in this direction, and if Government cannot be induced to do it by means of leaflets, co-operative societies or the Institute could or should undertake it. There is no need for any special measures to deal with rural insolvency. Chapter IV of the said Act contains sections which provide full facilities for such relief whenever the agriculturist is minded to seek it. In order to facilitate the redemption of mortgages in small cases, the object could be secured by the provisions for the services of village munsiffs (Chapter V) and of conciliators (Chapter VI). Though some of these provisions have been modified by later amendments, the full benefit of this Act can be extended to the agriculturists. In bigger cases tackled by land mortgage banks, special boards of conciliators may be instituted, and if no settlement be effected the cases may be referred to Special Tribunals to be newly instituted for final settlement to complete the redemption.

(c) Measures restricting or controlling the credit of the cultivator so as to limit his right of sale or mortgage of land be resorted to for some period in areas where people are specially backward, poor and illiterate. With the growth of literacy these may be withdrawn, if insisted upon.

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QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) Excessive fragmentation of holdings is one of the great curses to which Indian agriculture is subjected. It has not only reduced considerably the agricultural efficiency and produce, but has added materially to the cost of production and made improvements difficult.

In areas where commercial crops could be grown on joint cultivation basis, the loss due to excessive sub-divisions may be somewhat minimised. Moreover, necessary facilities for the marketing of these crops would enable the cultivators to reap fuller benefits than at present. But this is only a palliative and scarcely touches the fringe of the real problem. However, propaganda would be helpful in such cases, dwelling on the advantages of joint action for collective gain.

(*b*) The main obstacle in the way of consolidation of scattered holdings is the cultivator's lack of imagination or thought on this subject, the fact being taken as a matter of unalterable fate or destiny. Secondly, the ignorant cultivator attaches such an undue importance to his own piece of land that he is unwilling to barter it for another piece. There may be difficulties on account of variation in the texture or degree of fertility of the soil. And lastly may be mentioned the suspicion with which such proposals would be received. The best way, therefore, to go about this business is to carry on propaganda for voluntary barter or exchange of plots with special assistance or concessions from Government and exemption from registration fees, &c.

(*c*) This difficulty is being experienced in the Punjab, where consolidation of holdings is being tried on a large scale. There has been no experience gathered here or elsewhere. Though compulsion is contrary to the basic ideas of co-operation, still, in the interest of the individuals concerned as also the village community, legislation may be resorted to when 75 per cent. of the owners of land claiming 75 per cent. of the cultivable area in the village are ready to join in the voluntary scheme of consolidation. All disputes arising out of such consolidation must be kept out of the courts; otherwise all the benefits will be dissipated.

QUESTION 8.—IRRIGATION.—(*a*) It is possible to mention a few districts in this Presidency proper in which the extension of irrigational facilities is an urgent necessity. They are the districts of Poona, Satara, Ahmednagar, Belgaum, Sholapur, and Bijapur, large parts of which suffer fearfully from water scarcity. It is estimated that the total area of scarcity in fifteen districts of the Presidency cover approximately 40,000 square miles; these could be brought under cultivation by one of the several methods of irrigation. But in the case of the Deccan districts, through which the big rivers that spring from the Ghats flow towards the east and empty their treasure into the sea, on which dams have been constructed for the purpose of supplying water to produce electricity for industrial purposes in places like Bombay, a chain of small tanks would be a source of great relief. If the surplus of water overflowing the embankments of these rivers be carried by canals and stored in a series of tanks at suitable distances great good would accrue to the agriculture of these districts through which the rivers run. Wells would get a better water supply from these tanks. A large acreage could be fed by small canals for some period. An outlay on such small tanks in villages, therefore, has a great economic value. Mr. C. O. Lowsley, Superintending Engineer on Special Duty says in this connection in his Report, dated the 4th of February, 1927, to the Government of Bombay as follows:—

> "With a year's additional experience I am able to state more definitely what I consider to be the needs of the scarcity districts. The more I see of village small tanks the more I am convinced that

their value is more indirect in improving and maintaining the supply in wells in the vicinity than in providing a direct water supply. These small tanks more often than not dry before the hot weather, but so long as they contain some water, the wells in the neighbourhood never fail, and even after the tanks are dry the wells continue to give a supply for a considerable period.

"Any improvement, therefore, which can be effected by increasing or maintaining the supply in these tanks is of great benefit to the village."

He further says: "The indirect benefit is, however, considerable, and by constructing irrigation works in the scarcity tracts the remission and suspension of land revenue is averted, and at later settlements the assessment on lands improved can be raised. No direct result can be expected from village water supply, and if the villagers agree to pay a small contribution towards the cost I am of opinion that the works should be carried out to remedy a real grievance which exists in every district in this Presidency."

The outstanding obstacles or difficulties in the way are lack of finance and expert staff. These could be overcome by Government. The Government should allow the District Local Boards to undertake such schemes within their means by giving them special powers under the Act; moreover, co-operative societies started for irrigational purposes may be assisted with loans at a cheap rate of interest and helped with the loan of the services of experts. Moreover, an expert should be placed at the disposal of the Provincial Bank or the Institute for helping the societies to undertake such works. What people need badly is free and prompt advice. In several tracts of the Deccan people have sunk money in wells; but they have failed for want of proper advice in selecting sites for them and in building them properly. Money spent on such measures of prevention of famine is far better spent than the vast sum of money spent on famine relief works.

Government must revise their policy of expenditure on irrigation, and view it from a different angle of vision so far as the famine stricken districts in the Deccan are concerned. As compared with other Provinces, the irrigational facilities in this Presidency are very poor, especially in the Deccan tracts.

Moreover, in a pamphlet recently issued by Bombay Government on the subject of "Irrigation in Bombay" they show that the loss every year on major irrigation schemes amounts to something like Rs.11 lakhs. The basis of such calculations deserves to be carefully noted. It is to be remembered, however, in this connection that these protective works have been financed out of general revenues, and the document in question admits that "Protecting land by irrigation increases its value by 200 per cent."

While on this subject it is really worth noting the opinion of the Conference of the three Commissioners of Government when they were called upon to advise on the minor irrigation schemes. They say "In districts liable to famine the cost of preventive measures for the mitigation of famine can be met from the Famine Insurance Fund. We consider such measures of great importance in a Presidency where rainfall is so unevenly distributed, and as these schemes can be financed from schemes now available and can be brought into early execution. We give them prominence in our deliberations . . . ."

"At the outset we are conscious of the fact that measures to mitigate the rigours of famine and scarcity cannot be considered from a commercial point of view, and we consider that irrigational schemes in precarious tracts that yield little or no return to Government in actual percentage on outlay may still be of greater advantage to the State than works yielding even a 10 per cent. return in more prosperous areas. The measure of relief that is afforded

should be the sole criterion by which any such scheme can be judged. An irrigation canal in Bijapur or Ahmednagar which yielded an insignificant return would be of incalculable benefit to the people. Such a canal not only must increase the resisting power of the people in bad years, but would also tend to reduce large amounts of suspensions and remissions. The total remissions of land revenue resulting on the scarcity of the year 1919 amounted to Rs.33 lakhs, and no less than Rs.10 lakhs had eventually to be remitted in Ahmednagar alone. If we can give back their money in the shape of irrigation works, thereby promoting the interests of the people, we consider the indirect return to the State through the improved conditions of the ryots must outweigh pecuniary advantages."

" The areas liable to scarcity in this Presidency are Gujerat and the east of the Bombay Deccan and of the Southern Maharatta Country, and especially the eastern portions of Ahmednagar, Poona Sholapur and Bijapur. It is in these areas that we consider the investigations should be held."

QUESTION 9.—SOILS.—(iii) By means of erecting suitable dams in places near the creeks, vast areas could be protected from erosion by the influx of salt water. There are already a few good co-operative societies started in the district of North Kanara, and these have added considerably to the income of the agriculturists. What is wanted is a special officer to be in charge of vigorous propaganda and to prepare surveys and schemes and get co-operative societies formed to work them out. These do not need a large outlay.

QUESTION 10.—FERTILISERS.—(*a*) Natural manure could be used in large quantities more profitably. It is to be regretted, however, that the supply is decreasing day by day on account of the diminution in the number of cattle and its extensive use as fuel practically all over the country. This is with regard to cattle manure. As regards night soil, which lends itself to being manufactured into very valuable manure, it must be noted that only a few big Municipalities are in a position to use it commercially. If it be intended to utilise these resources to the fullest extent so that both cattle manure and night soil may be converted into valuable fertilisers, Government should give facilities for opening fuel depots to make cheap fuel available to the poor, and thus discourage the use of cattle manure as fuel. If Government could encourage smaller Municipalities to take measures to preserve and manufacture night soil into manure by grant of loans and by persuading railways to transport it at cheap rates, large areas which at present depend upon artificial manures could get natural manures cheaper. The success of this scheme will also require a vigorous propaganda to draw the attention of the people to the importance of this subject. There are places where it is reported that night soil manure is given away almost free, while in some districts it is so scanty that a single cart of this manure costs from Rs.3 to Rs.5.

(*b*) The best method to prevent fraudulent adulteration of fertilizers is to sell it through the agency of the taluka development association or a co-operative society formed for that purpose, or a credit society. Such a society is supposed to buy it and sell it on guarantee.

In some areas twigs and leaves of trees in the forest are extensively used as manure. It is called *rab;* in the district of Kolaba it is required for the cultivation of rice and other crops. Government should give the agriculturists full facilities to get it as plentifully and cheap as possible.

(*d*) In the Deccan, especially the canal areas, also in the Satara District and the Southern Maratha country, and partly in Belgaum district in the Taluka of Chikodi, a single sale shop at Kolhapur working on behalf of the Yeloor Union in the Satara district, sold manure worth half a lakh of rupees, and the societies in the canal areas have used this year, through the

branches of the Provincial Bank, fertilisers worth over a lakh; and it is worth noting that this growth has taken place during recent years.

QUESTION 11.—CROPS.—(i), (ii) and (iii) The most serviceable machinery to-day for these functions would be local associations or co-operative societies, such as seed societies. Special rewards may be offered for the preservation of the best seeds.

(iv) Formation of co-operative fencing societies like those formed in Dharwar and Kanara or by grants of seasonal licences for guns through co-operative societies.

QUESTION 12.—CULTIVATION.—(i) Study of the methods of investigation of dry crop cultivation should be encouraged by sending some students to other advanced countries where similar conditions prevail.

QUESTION 13.—CROP PROTECTION, INTERNAL AND EXTERNAL.—(i) Owing to unpreparedness of the department, sometimes great damage is caused to the property of the agriculturists. For propaganda and prompt action to be taken in advance, it would be necessary to keep a cut-and-dry plan of campaign ready, so that a certain amount of tools and staff should be generally kept ready, as is often the case both in connection with famine or war. For instance, when, recently, locusts appeared practically all over Sind and were likely to pass on to Kathiawar and Gujarat it was complained that no sufficient measures for prompt propaganda were ready to advise the ryots to be prepared for their onslaught on the crops and possibly to prevent it.

(ii) Propaganda is further necessary in favour of the adoption of the methods of prevention of smut in *juar* and of other disease, as the cost involved is comparatively negligible and the profits that accrue are considerable.

QUESTION 14.—IMPLEMENTS.—(*a*) In this case, as in the case of fertilisers, propaganda, exhibitions and demonstrations would prove equally useful. Provision for the supply of spare parts and facilities for easy repairs would go a great way in their speedy adoption by the cultivator. These should be taken to his field and the advantages demonstrated.

(*b*) In districts where agriculturists are unable to buy their own implements, societies for the co-operative supply of them either on hire or hire-purchase system would prove very successful. Societies in the district of Ahmednagar have yielded good results and the branches of the Provincial Bank have paved the way for their use by the societies in the canal areas.

(*c*) If the duty on iron which is imported for the purpose of the manufacture of implements required by the agriculturists be reduced and railway facilities for their transport be adequately procured, the manufacturers would be able to put the implements on the market much cheaper.

QUESTION 15.—VETERINARY.—(*c*) (i) Even in this as in other matters such as greater use of facilities, much depends upon his bent of mind in favour of using means of scientific treatment. Mere propaganda will not achieve wholly the object. Conviction, brought home to them by practical demonstration and practical results, would go a great way.

(ii) In locating these dispensaries, the factor of proximity to the cattle market is to be taken into account. Indian cultivators love their cattle almost like children, and would not fail to avail themselves of these facilities. I have seen people calling for the Veterinary Surgeon for the treatment of their puppies.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) (i), (iii) The Agricultural Department is showing greater attention to the improvement of live stock by the supply of bulls of good quality to the agriculturists who have begun to take kindly to the improvement of the breed; and in four divisions

of this Presidency, over 63 *premium bulls* have been made available for the services of the cattle, and it is observed that the effect of this measure on the cattle in respective areas is " remarkable," as is seen in the increasing demand for them. Co-operative organisation for such work is attended with difficulties. Still, a few societies started for the encouragement of cattle breeding have done some work, and if, as in the Punjab in the case of breeding horses, facilities by grant of lands for their maintenance could be afforded, villagers would be induced to take to cattle-breeding. What is necessary is that that breed of live stock should be encouraged which can produce cattle, good milking cows, as also bullocks strong enough for ploughing purposes.

(ii) Most of the attempts made for the improvement of the dairying industry have not proved successful, and the matter needs going into very carefully. One of the greatest needs of the community is the supply of pure and cheap milk, together with its products. The welfare of infants, babies and children so much depends on this. Many vegetarian communities have to depend for the supply of animal fat in their dietary on these. No efforts, therefore, should be spared by Government for the successful development of this industry by municipal or co-operative concerns if started afresh. The backwardness of public opinion is largely responsible for this deplorable state. While in Copenhagen I was happy to visit one single dairy concern which was thriving and supplying pure and cheap milk to half the population of that big town with nearly six lakhs of people, the supply of milk to hospitals and children being separately manufactured. It drew its supply from the co-operative dairies scattered in the neighbourhood of the metropolis.

(*d*) The insufficiency or the failure of fodder supply is one of the stumbling blocks in the way of the dairying industry. I would advocate the formation of fodder-storage co-operative societies on the lines of societies for the storage of grain from members by a scheme of regular contribution. These could at least afford partial relief when there is regular fodder famine as is often the case in the Deccan tracts.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—(*a*) and (*b*) It would be hazardous to give an all-round estimate of the days of work by an average cultivator. It would vary in different tracts and in regard to different crops. Sometimes rough calculations are made without reference to his needs of rest, entertainment, and social duties. Considering all these factors, it may be safe to say that if the life of the cultivator be mapped out carefully, he could spare some hours during three or four months of the year for some additional paying occupation. But the lack of such occupations near his homestead on an organised basis has been the main cause of his whiling away his spare time. Insufficiency of means has driven him, however, to ply carts to the neighbouring markets or undertake miscellaneous works on contract in the neighbouring big towns. The means to encourage the adoption of such industries would be as follows: first, the education of the cultivator in that line of industry; secondly, the supply of facilities for getting the required plant and a sufficient quantity of raw material; and lastly, finance and facilities for marketing the finished product.

(*c*) In many cases the obstacles have been the unsuitability of the climate and the strong religious prejudices of the people. In the matter of poultry and bee-keeping the strong sentiment of Jainism in favour of the preservation of life, even in animals, beasts and insects would prevent people in Gujarat from taking to it kindly.

(*d*) The policy that would have to be adopted in starting subsidiary industires in rural areas should aim at steadying the cultivator on the land. They should, while occupying the spare time of the cultivator,

prevent neglect on his part of his legitimate work and the craze for new undertakings. Moreover, they should utilise most of the raw material in the production of which he is engaged. If the finished article has no local market, the same should be easily transported to the neighbouring markets for ready cash. From this point of view the following agricultural industries, among others, could be profitably tried:—

1. Oil pressing .
2. Sugar making.
3. Cotton ginning.
4. Rice hulling.
5. Rope making.
6. Hand spinning and hand weaving.
7. Production of dairy products.

(*e*) As far as possible these should be made to run on a co-operative basis.

(*f*) Yes.

(*h*) The encouragement of the village *akhada* or gymnasium, tournaments of sports on days when there are big fairs or on occasions when large gatherings of people are held. Co-operators interested in rural welfare ought to arrange such sports as would capture the enthusiasm of young men and give them prizes, even devoting a small fraction of the money now made available out of profits for public utility purposes. As honorary Provincial Secretary of the National Baby and Health Week Association in this Presidency, I would strongly advocate vigorous propaganda on subjects like industrial efficiency, value of health, village sanitation, supply of pure water, preventive medicines, cheap nursing and medical relief, provision for infant and child welfare, maternity work, and facilities for the training of women folk in better knowledge of domestic efficiency and economy. They should get this work done through local associations or village panchayats by contributing their labour if money contribution be difficult. When villages suffer from guinea worm they not only waste their time but their money also. This waste could be easily prevented by a small suitable outlay on their own work. A village schoolmaster and schoolmistress, trained in social service methods, could easily take a lead in such useful community work; and this should form a subject in the curriculum of studies for the training of teachers and mistresses for rural parts.

QUESTION 18.—AGRICULTURAL LABOUR.—(*a*) (i) Already surplus labour is being attracted to places where it is deficient by better wages and improved conditions of living, as, for instance in areas served by the canals in the District of Ahmednagar or in Sind.

(ii) In tracts where large cultivable lands remain uncultivated, labour can only be attracted by the measures mentioned above; but in the case of labour that is wanted to be permanently settled, better housing conditions and small plots of ground should be made available as only landless labour under the present conditions could be attracted to such areas. Agriculturists as a class having some kind of ancestral land, are much attached to it and would do anything to remain closely associated with it.

(*b*) At present, shortage of labour is more or less a common feature of agricultural industry practically all over the Presidency, owing to insufficiency of income from land, more remunerative wages afforded by industrial and other works, Public Works Department and irrigational works started on a large scale, and greater facilities for enjoyment of life. If this present position of the agricultural industry is to be improved, the only way to remove these causes is to make agriculture more paying, provide facilities for better enjoyment of life and living, and thus enable people to earn all the money which they require for their current and occasional needs.

(*c*) In order to facilitate the permanent occupation and development of areas uncultivated, offers of supply of capital, special concessions and exemptions from taxation for a certain period and the supply of labour-saving machinery like tractors, etc., should be widely advertised.

In Sind vast areas will soon come under cultivation owing to the Sukkur Barrage Scheme; these will need a very large supply of labour. We feel confident that a large number of poor *haris* (cultivators) will gladly come forward to settle down there permanently for cultivation, and the co-operators in that Province will cheerfully get co-operative agricultural colonies formed, beginning with proper propaganda. But the success of such a scheme will largely depend upon the policy that will be adopted by Government in the distribution of land. If they openly put it to auction, it will be purchased by rich people who possess ready cash; should Government offer a large share to poor cultivators or those labourers who own no lands, these could be easily organised into strong co-operative societies. Should Government sell lands to these bodies for the benefit of their members and accept payment of a reasonable value of the land, charging a small rate of interest, in ten annual instalments, the scheme stands a great chance of success. It is even possible to start a special bank to finance such agricultural colonies; schools could be opened to give a general and special agricultural training and better housing conditions could be provided to enable these settlers to lead a happy and contented life. The Institute's Branch in Sind is very keen on taking up such work, and they have been after me to secure these facilities for them so that they could begin the preliminaries; but I am asked to wait, as any discussion of this question at this stage would be premature. But in the interest of the poor cultivators in Sind I would insist upon Government a recognition of the claims of the children of the soil and would ask them to readily grant as many facilities as are required to gain the end.

QUESTION 19.—FORESTS.—(*b*) It has already been suggested in one of the foregoing answers that a cheap supply of firewood and also of fodder must be increased in rural areas for the purpose of saving natural manure and the lives of cattle. One of the methods by which this object could be achieved is the formation of co-operative firewood societies or forest *panchayats*. The forest administration should also make it easy for people to secure a sufficient supply of green manure which is so very useful in preparing the land for cultivation, as is at present seen along the Konkan. All over the Konkan districts in villages owned by Khots there are large areas of land owned by them along the hill sides which are at present yielding nothing but inferior grass. The Khots who as a class are not a very rich people would like, I am told, to grow forest along these hill slopes, provided however, they are given sufficient facilities by way of long-term loans and technical advice. In this way there would be a greater supply of green manure and also a valuable fodder; and in order to procure a larger supply of cheap fuel special plantations of trees like *tembhurni* whose leaves are used for making *bidis*, the *cashewnut* trees the fruit of which is used in preparation of sweetmeats, and *casuarina*, bamboos, teak-wood would easily add to the income of the growers or masters as these grow within a comparatively short period.

QUESTION 20.—MARKETING.—(*a*) The existing facilities for marketing of the produce of the agriculturists are in no way satisfactory. When agriculturists take their produce to markets for sale, they are entirely at the mercy of the *dalals* who are careful and clever enough to take the fullest advantage of the difficulties of agriculturists and their ignorance of world conditions which have largely commercialised the Indian agricultural industry owing to heavy exports. What is true of cotton is also equally true of grain, jaggery or *gur* and ground-nut and other money crops. The best way, therefore, to improve them is to start co-operative sale societies with the

membership composed of agriculturists who are pledged to bring all their produce to the shop. This system has worked well in the Karnatak, and the Report of the Department of Agriculture in the Bombay Presidency for the year 1924-25 makes the following observations with regard to the success of co-operative sale of cotton in the Karnatak.

" On the other hand, in the matter of co-operative sale of produce great things have been accomplished, and there has been much extension in the year under report. The co-operative cotton sale societies at Hubli and Gadag existing primarily for the sale of improved cotton derived from seed provided by the Agricultural Department are a monument of what can be done in the co-operative organisation of sale. Their work has been extended in the present year and they have become not only sellers of produce, but also growers on a large scale and distributors of improved seed."

A similar success has met the effort of the arecanut sale societies in the district of North Kanara. The co-operative *gur* sale society in Poona has met with a signal success as the sale amounts to nearly Rs.3,50,000, and its shop now ranks amongst the first-class shops in the market. The society for the sale of potatoes produced by Malir cultivators in Sind, near Karachi, has also a very good record, so also the grain sale society at Sukkur.

One of the important remedies for their improvement would lie in the introduction of uniform weights and measures, and, secondly, in the formation of associations with definite rules to regulate the conduct of the *dalals* or the agents of the middlemen. But I am of opinion that this work of sale should be undertaken by co-operative agencies, and the experience of the Punjab also supports this view. Provision in the by-laws might be made that the produce of non-members may be allowed to be sold by these sale shops with a provision for limited share in the profits by way of a rebate.

In areas where such societies are not possible of formation on a large scale with economical management on account of the insufficiency of the supply of produce, such work should be undertaken by central financing agencies till the societies in the neighbourhood are in a position to undertake this work themselves by forming sale unions or sale societies in relation to local circumstances. Moreover, it is now being recognised that co-operative finance must go hand in hand with co-operative marketing. Dr. Joho Mathai, now on the Tariff Board, strongly advocates this system. There are a few additional collateral advantages; it secures prompt repayments of loans, supplies more reliable basis for normal credit statements of members, and facilitates the use of the cheque system on a large scale and discourages book adjustments. In our Presidency it is generally held that those who are actually engaged in this work as *dalals* should as far as possible not be elected on their managing committees.

(*b*) and (*c*) Government should encourage the formation of such sale unions or societies on a co-operative basis by putting a special officer at their disposal to guide them and to give necessary advice in respect of preservation of quality and purity of the article, the methods of grading and also packing. Such an officer should work as far as possible in consultation with the Departments of Agriculture and Co-operation and the Institute. If the sale societies undertake the business of purchase of agricultural requisites on a large scale on indent or consignment system, it would be a source of profit and would supply work to them during seasons when the business of sales was slack. Formation of these institutions will depend upon active intelligent propaganda for which sufficient aid from the State would be required as such expenses could not or are not generally allowed under management or administration in that behalf. Mr. Wolff, who is a great advocate of self-reliance and self-help in co-operation, urges the responsibility of co-operative education as the function of the State. I may even

add that it would be necessary for Government in the initial stages of such undertakings to better replenish the cost of management.

(*d*) Information relating to the world markets and markets in the country should be made easily available by the department by issuing press notes, or weekly bulletins and supplying them to the press and also to the societies concerned under the direction of the special officer. The intelligent co-operators and cultivators will no doubt be better able to take full advantage of the high prices and better markets.

Money spent in this way to assist agriculture effectively will be money well spent.

QUESTION 22.—CO-OPERATION.—Having regard to the innumerable difficulties in the way of the workers in the field of co-operation, it will be conceded that the success which the movement of co-operation has achieved is very encouraging and there are many among the outsiders interested in this movement who consider the measure of success phenomenal. That the movement deserves great encouragement in its steady onward march goes without saying, and only those who have not much experience of this activity in rural parts would feel lukewarm about it. Those that have a yearning for promoting the welfare of the masses and have faith in humanity have discovered in it a great factor for their economic betterment, social improvement, and moral uplift. A genuine co-operator is a far better citizen than one who has not come under the influence of this man-making movement. The strides which the movement as a whole has made in some of the western countries and its success in eastern countries as well have opened a new and vast field for social workers, economic reformers, and politicians even in India to-day. The Indian movement has come to stay and is fairly on its way to take deep root when guided and controlled properly by all those who are responsible for the prosperity of the country as a whole. It has supplied one of the most powerful brotherhoods for the national advance and there are very few movements in the country to-day that can successfully vie with it in its potentiality for constructive power for achieving great practical good to the masses. It has enlivened people when they were immersed in despair; it has brought them relief which could not alone be afforded by many a piece of agrarian legislation passed for their improvement. It has supplied the deficiencies of these attempts by emphasising the moral side of its work. It has enabled the agriculturists to lift up their heads and has provided a school for a most urgently needed course of instruction of a very practical and useful nature. Co-operation, in a word, has proved to be one of the most effective solvents of their moral and material degradation. It will not fail people in their struggle for regeneration if only they remain true to its principles and practice. Workers in this sphere are not slow to recognise either its limitations or its present shortcomings; they only plead for patience and indulgence because a growth with which vast masses of illiterate and unambitious people, placidly content with their present lot, are involved naturally takes long to mature and become perfect. They want the movement to be judged as a whole in relation to the results achieved by other activities started for their good in the country during the past two generations and in which they themselves had played as great a part as they have done in the career of the co-operative movement. In judging of the success and the failures of this movement in India the most important factor is the correct standard of examination. It must be remembered that it is not claimed for the movement that it has covered the whole field; workers who are very keen on its speedy growth are fully conscious of that fact that it has only touched the fringe of the problems confronting the Indian agriculturist; what they claim for the movement is that if it be well directed and enthusiastically assisted by all the parties concerned in the joint responsibility of the amelioration of the conditions of the masses

and the agricultural classes, it contains germs of true and successful development of the life and industry of the cultivators. Take for instance *Sind;* till as recently as 1916-17, this little province was considered unfit for the spread of the co-operative movement and thus it was neglected as not being a proper field for its successful growth. Luckily this policy was soon abandoned. And now those who have visited Sind and seen the work already achieved there, after carefully studying the gradual advance that has taken place, have had their faith re-doubled in the power and the potentiality of this great movement. They feel convinced that it has really contributed to the material improvement of the people in that comparatively backward area.

In support of the foregoing statements I would like to quote from the Annual Report on the Working of Co-operative Societies in the Bombay Presidency (including Sind) for the twelve months ending March 31, 1926, the following two extracts. They speak for themselves.

"One noticeable feature of the movement in Sind during the last two years has been the fact that members are being more adequately financed than they were before. The usual individual maximum limit of Rs.500 has been in many cases raised to Rs.1,000, while the needs of members with larger holdings have been met by sanctioning special limits for them. The result has been an expansion in cultivation and also the prevention of the necessity for members to supplement their borrowings from the societies by loans from outside. The ordinary societies, however, are not in a position to meet the needs of the bigger zamindars of whom there is a large number in Sind and who are often as badly involved as the smaller cultivators. The experiment of starting a separate Zamindari Bank in Thar and Parkar has proved very successful."

"During the course of my (The Assistant Registrar's) tour this year, which as I have said above nearly extended to the whole of Sind, I could see that wherever co-operative societies had been established there appeared a marked improvement in the methods of agriculture and signs of increased prosperity among the agriculturists. Dr. Mann in the course of his tour marked the same signs and in a lecture delivered to the educated public of Hyderabad he remarked that he had been greatly surprised at the agricultural progress made by the members of a group of 17 co-operative societies within a distance of ten miles from Hyderabad. Five years back, the members told Dr. Mann, their average crop of cotton was five maunds per acre which has now increased to nearly 20 maunds per acre and in some cases the record was even 25 maunds per acre. Their statements, he said, were corroborated by the generally good condition of their lands and their decent appearance. He was curious to know the cause of this improvement which they attributed to dry ploughing in winter, the use of Egyptian and Monsoon ploughs, selected seed and judicious manuring. These were factors known to the agriculturists all along, but they did not work so hard on their soils for they always found that whatever be their produce they could not aspire to anything but a bare maintenance, and the rest must go to repay their debts to the *sowcars*. With that gloomy prospect, they put no heart in their work. The cheap co-operative credit had relieved them of the load of heavy interest, and they now felt that they would possess what they would produce. This confidence had stimulated them to earnest effort of which the result was apparent in the fertility of their crop and their decent appearance, &c."

Who will not call this a romance or a fairy tale? Similarly enthusiastic accounts of the splendid record of work which is to the credit of the movement in the districts of Dharwar and Broach and some parts of the districts of Satara—the Walva taluka, could be given.

Like the black sheep in every fold, the movement of co-operation has its share of defects and black spots. There are overdues in societies, but do

our critics know that the average of arrears of the total demand in Municipalities in the Central Division stood at 15·8 though these range in the various divisions of the Presidency from 15 per cent. to 47 per cent., whereas the arrears in co-operative societies in Sind were only 7·5, and for the whole Presidency these stood at 14·2? Moreover, some societies are charged with bad management of accounts, but the audit note on the municipal accounts in some Municipalities will tell a pitiful story. As regards the number of cases of fraud, the record is not in any sense ignominous or damning. There were other plague spots too; these have been cleared of all the bacilli. We are conscious of these and several other defects, but they are remedied as soon as they are discovered. Failures should point the way to improvement and not dispirit us; they do not chill the enthusiasm or those who work in faith. Workers, whether official or non-official, have to carry on their task in a true missionary spirit, depending for the ultimate success of the movement on its truly popular and democratic basis strengthened and stabilised by means of a systematic and sustained attempt at the education of members; constant supervision, wise and intelligent guidance, and the ultimate responsibility of members, from among whom alone ought to come the leaders of the movement.

(*a*) Here in India, though the movement was originally initiated and promoted by Government as an additional link in the chain of agrarian measures for the improvement of the agriculturists, leading people in several Provinces came forward to take a due share in its furtherance, working shoulder to shoulder with Government officials, recognising fully their duty in the ultimate development of the movement on truly popular and democratic lines and believing that it was the joint responsibility of Government and the people. Here in Bombay we are not slow to translate into action this belief and give a definite shape to it. It must be said to the credit of our Government that they sought the assistance of the non-officials who in good faith came forward to make the necessary sacrifice, to participate in the orderly growth of the co-operative movement. The department welcomed and assisted whole-heartedly in the establishment of non-official bodies like the then Bombay Central Co-operative Bank and the Bombay Central Co-operative Institute and definitely adopted the policy of gradual de-officialisation, consulting these bodies on important occasions in matters of policy and the need for further advance. Thus there is a gradual devolution of functions and division of labour. It is a definitely accepted policy of the department now to leave to the Institute all matters relating to propaganda, education, training and instruction of the members of the co-operative societies, together with supervision. The Institute discharges this two-fold function with the help of its district branches and the divisional branches or institutes both working under its direction and guidance and with the assistance of the supervising unions and taluka development associations that are being formed in suitable areas.

This scheme has worked so well that we here, in Bombay, in our "Temple of Co-operation" work cheerfully together, share the responsibility and settle differences if there be any. The Bombay Co-operative Societies' Act, which was so ably piloted through the Council by our then Registrar Mr. J. A. Madan, has given statutory recognition to the position and power of the Provincial Co-operative Institute, Bombay; and in an important matter the opinion of this body has the determining voice. If it be intended to make the movement a live force, enthusiasm, vigour and vitality must be breathed into it. Attempts at enlisting the popular sympathy and support, therefore, must be cheerfully made by the officials, and an impression which has gained ground in some parts of India that it is the officials who are to run the show and that it is no concern of the non-officials to associate themselves with it or they are not needed, must be removed at once.

Knowing as I do the position of similar non-official bodies that have latterly come to be formed elsewhere, I am emboldened to say, that as pioneers in the field, we have paved the way for our fellow-workers in this cause in other parts of India to go ahead. It is their duty to make the necessary sacrifice of time and energy to justify their position. Day by day the conviction is forcing itself on me that it is a correct policy and both Government and the leaders of public opinion should push it forward, leaving to the department ultimately the statutory functions of registration, audit, and cancellation of societies. For various reasons I would still ask Government to supply free audit to primary societies of modest dimensions, others being free in accordance with rules made by the Registrar to arrange for it either departmentally or otherwise. This policy of transfer of responsibility to the popular shoulders will depend largely for its success on the measure of financial help given by Government. Such an expenditure which is supplemented by even higher contributions from societies is a profitable investment on the education of the people as a whole and no argument of the taxpayers' money being wasted has any application in this case. It is, in fact, the general taxpayer who is largely benefited by it.

After having said so much about the general policy governing the relations of the non-official public with the movement, I would now put down our views with regard to special measures that should find favour with Government. These would fall in three categories:—

1. Devolution of control and definition of policy.
2. Financial assistance, specially in aid of education at all stages of co-operative growth on the basis of 1 to 1, if not more.
3. State aid to put schemes like land mortgage banks on a sound financial footing.

With regard to the first category, I would suggest that the Registrar might profitably transfer some of his powers and functions to his deputies or the Assistant Registrars so as to avoid pressure of work and secure despatch. Raising limits on credits, under his definite instructions and sanction of loans recommended, may be entrusted to them.

Propaganda for organising new types of societies may be made the function of the Institute which should undertake to arrange for it under its direction by the employment of trained and full-time men working under or in conjunction with one of the various parts of its machinery, such as the supervising unions, branch institutes and the taluka development associations. In certain cases, however, the services of special officers or experts will have to be requisitioned from Government by the Institute. Government should make their intentions about the co-ordination between the various departments like Agriculture, Industries, Education, Veterinary, Irrigation, and Forest, and the Co-operative Department, clearly understood by all concerned, and the heads of these departments should be asked to meet at least once a year at a regular round-table conference to discuss their difficulties and adjust differences, if any, and secure harmony in their work. The President of the Institute may be asked to attend such conferences.

As regards the second category, in addition to the direct aid to propaganda in all its recognised forms, Government may make scholarships available to the Institute to arrange visits or tours by co-operative students to foreign countries or to other Provinces in India to make a comparative study of the successes and failures of the movement. Government should send officers of the rank of the Registrar, Deputy Registrars or Assistant Registrars to foreign countries to enable them to be in close touch with the currents of co-operative thought and activity, in addition to their visits to other Provinces in India to make themselves familiar with the new experiments that are being tried there. This interchange of thought and action would prove of material advantage and save a considerable amount of labour. Some of us hold the view that the office of the Registrar should be held by

a competent officer of Government whom they would keep in office for a sufficiently long period, as frequent transfers are detrimental both to the department and the movement. Officers of the subordinate grade must be selected from among the ranks of men who have made their mark by their study of economics, co-operative banking and co-operative law. It would be of great value if they were good speakers in the vernacular of the Province in which they have to work.

As regards the various non-official agencies in the country, they too have begun to lend their support to the co-operative movement. The Municipalities and the District Local Boards are the strongest representative bodies of the public. Some of them have begun to deposit their surplus funds with the central financing agencies and make grants to the branches of the institutes in their respective areas. If their School Boards, on which the duty of education in rural parts devolves, would extend their co-operation by allowing their school masters to attend co-operative secretaries' training classes, they would be supplying to the Institute reliable and intelligent workers to conduct on holidays and in leisure hours the propaganda in villages in which they work and exercise their influence.

(*b*) (i) The Credit Societies fall mainly in two groups in accordance with the nature of their work. If they are pure credit societies giving short-term loans extending from one to five years, their financial requirements are at present met by the central financing agencies. These are now in such a solvent position that they do not stand in need, as a rule, of any capital from Government. But it is the long-term credit societies which go by the name of land mortgage banks, that will need State aid to a considerable extent. It may not be necessary for Government to give them loans. If they give a guarantee to the bonds or debentures that may be floated for raising long-term capital to be redeemed after 25 or 30 years, associations or banks for the supply of long-term credits may easily be started. Some other help would be necessary in the beginning regarding which I have given my views in my answers to one of the foregoing questions.

(ii), (iii). References to these have been made in foregoing answers.

(iv) In Dharwar and Kanara districts, societies have been successfuly formed for the purpose of constructing stone walls, wire fencing, &c.

(vii) The success of societies for joint farming presupposes mutual confidence and good seasons. Two such societies called Arjunsonda in Sholapur district and Vambora in Ahmednagar district, have shown difficulties of working more than encouragement.

(ix) Societies for other purposes, like social or marriage reforms, thrift, promotion of compulsory education, adult education, better farming and better mode of life, are not very common here, because most of these objects are attempted by means of propaganda at meetings of members for general purposes. Such societies are formed in the Punjab, and some of them are still in an experimental stage.

The Bombay Provincial Co-operative Conference held in 1923 passed a resolution recommending to Government to pass legislation to compel a small minority in a village to joint schemes mentioned in this section for the common benefit of all when it could be shown that 75 per cent. of the cultivation land in that village is being improved co-operatively either by irrigation, fencing, or consolidation.

(*d*) I have personal knowledge of societies of various kinds, and if we have not to judge them by an unnecessarily high standard I would say that a large majority of them have achieved their object, at least partially. My Hadapsar Co-operative Credit Society, near Poona, which was visited by the Commission, has achieved more than what was ordinarily expected of it in the beginning. I have submitted to the Commission copies of a statement submitted by me on the occasion of the visit on the 30th July, 1926, to that Society by His Excellency Lord Irwin, the Viceroy and Governr-General of

India, Her Excellency Lady Irwin, and His Excellency Sir Leslie Wilson, the Governor of Bombay for the second time. The society has given birth to many other co-operative societies in the village and in Poona for the benefit of its members. I know many other societies that have miserably failed. The reasons for their failure were the lack of personal touch, inefficiency of supervision and want of proper control by effective local leadership; free access to capital is also one of the causes. If these could be removed and petty differences and quarrels got over, the bad societies would also succeed.

I am attaching herewith, as Appendix I, a short account of a small co-operative credit society in a village called Banavasi, in an out-of-the-way district of North Kanara. From the information collected by one of the Honorary Organisers in detail regarding its working, the possibilities of this type of good co-operative credit become clear and self-evident.

QUESTION 23.—GENERAL EDUCATION.—(*a*) (i) Such graduates either of Arts Colleges or Agricultural Colleges or Commerce Colleges as have taken their degree in courses of studies comprising rural economics, co-operation, &c., should have better chances of employment in the Judicial, Revenue, Agriculture and Education Departments, because the nature of their training brings them into much closer touch with the rural population.

(ii) It has already been suggested that high schools situated in towns in the midst of rural areas should provide for an alternative course in agriculture suited to the capacity of students and the needs of the district.

(iii) I would not deprive the children of the agriculturists of the general acquaintance they cultivate and the wider outlook they acquire from the general lessons that are incorporated in the readers meant for elementary schools. These, however, may be revised, adding a few lessons of agricultural interest or bias so as to make the average child attending primary school familiar with the condition of agriculturists in general and to make the non-agriculturists' children feel interested in rural welfare.

(*b*) (i) General education by visual instruction could go far to improve the general culture of the agriculturists and induce them to take interest in matters of wider interest that may have an indirect bearing on their life and work. It is generally the children of those villagers who have no permanent landed interest who leave agricultural occupation or neglect it; those, however, who have good lands and can make their work paying would not ordinarily leave the village.

(ii) It has not yet been tried anywhere on a large scale.

(iii) Most of the schools in the villages teach up to the fourth vernacular standard. To proceed with their studies would necessitate their leaving the village, which is not always possible except in the case of the children of the few rich parents who can afford to pay for their higher schooling elsewhere.

QUESTION 24.—ATTRACTING CAPITAL.—(*a*) Capital is, as a rule, shy where sure returns are doubtful. If agriculture is to be developed on a capitalistic basis vast areas, expert advice, a plentiful supply of water, and protection alone could attract large capital. Management of large estates in undeveloped tracts is costly. Generally transporting facilities and facilities for marketing would prove great inducements.

(*b*) Fear of famine and speculative nature of the investment are some of the factors.

QUESTION 25.—WELFARE OF RURAL POPULATION.—This problem has bewildered many a social worker. Its successful solution depends upon so many factors and facilities that ordinarily it is difficult to command either all or most of them. The well-being of the rural people has many sides, and unless their importance is realised by the people themselves and unless they feel dissatisfied with their present lot, any attempts from outside would be spoon-feeding. Moreover, there are many improvements that do not

necessarily require any large outlay. If people, instead of spending money on the repair of the village tank, well or road, would make up their minds to spend collectively some time every day or every week, they can achieve much without any expenditure. Thus the true incentive for such improvement is the habit of self-help and self-reliance, self-consciousness and self-respect.

So long, therefore, as such an attitude of mind and habit of thought cannot be cultivated by the villagers themselves, the betterment of their condition will be the result of outside initiative. Moreover, the solution of the problem will have to be approached in its entirety and not in compartments. Ordinarily the beginning will have to be made with education or the spread of literacy. Without the capacity to understand, grasp and to read, any endeavour will prove ineffective. The first suggestion in this connection that I would like to make is the development of the spirit of social service or community service. Even among villagers there is any amount of intelligence, but it is generally dormant or self-centred. It has got to be roused and raised to a higher and more unselfish level.

If the improvement of the economic position is to be summed up, one would say it is better farming, better business and better living; and it has been shown extensively in the foregoing answers that the most effective means to achieve that end would be the co-operative system. If the cultivator thus be enabled to secure good bread he could surely build a good body.

The next problem is the betterment of his physical strength. It is not true that everywhere in rural parts people are strong and healthy. In many Provinces it is just the reverse; they suffer from many diseases, especially malaria, and owing to low vitality their power of resistance is limited; when once they suffer from this disease their life becomes a drudgery; they suffer from morbidity. To alter these conditions materially many-sided and continuous endeavours will have to be directed in the right channels. The improvement of hygienic conditions would necessarily require money even if the people were to work. Nature is very generous to them. Fresh air, the most precious gift of God, is easily available to them without any cost, but such is not the case with water. In many tracts for months together there is a great scarcity of good water; supply of pure water is the first necessary requisite of healthy life. Better housing conditions are equally an urgent necessity. Light, which is another gift of nature, is not easily and freely made the most of by them. Some of the houses and huts in villages are so close and low that it looks as though they abhor light. They have to be taught the truth of what the sanitary primers say: "Where light cannot enter, the doctor must." I have already alluded to the need for health shows or exhibitions and celebrations of Mothers' Days and Baby Weeks. Clean-up campaigns also could be started by village officers.

There are not many organised bodies in villages that could effectively tackle this problem except the *gram* panchayats or the village panchayats. Their number, however, is very limited and their resources extremely meagre. I will illustrate my point. The District of Satara has a population of a little over 10 lakhs spread over the urban and rural parts. Excluding the municipal areas, the rural population is served only by 35 village panchayats having under their jurisdiction a population numbering about a lakh. Thus it will be seen that more than half the population have no agencies to assist them. Moreover, their financial position is also pitiable. The total income of the District Local Board is roughly Rs.9,00,000, and setting aside a little over Rs.3,00,000 for general purposes, the rest of the money must go towards educational expenditure. And out of this grant I am told that only Rs.3,000 is made available to the 35 village panchayats for general sanitary purposes. If the needs of sanitation and hygiene in rural parts are to be supplied effectively, it is very necessary that these should be placed under a special

officer if not a special department. Some more funds must be made available to them. Otherwise their most essential needs would naturally come to be neglected, and ultimately the people would suffer. Their general well-being will also depend upon the enrichment of their social or community life and the eradication of social or community evils. Love of litigation, even if it be due to poverty, would be controlled by arbitration societies or by the use of the village munsiffs. The habit of using drugs or drinks eats into the very vitals of their moral and material life. Diseases like malaria, cholera, small-pox, guineaworm (in tracts served by wells), diarrhœa or dysentery are very common; they increase mortality and morbidity. To remove these there is need for a vigorous health propaganda campaign, both public and personal. The new scheme of *Village First Aiders* started by Major-General A. Hooton, the present Surgeon-General with the Government of Bombay, has worked satisfactorily, and it deserves, therefore, to be extended. To secure better health conditions for women and children the services of trained midwives to work in rural areas have to be enlisted. Side by side with this curative work, centres of culture and reform must be started and encouraged. To the village school should be added a village library and a village club or a community centre. Under the auspices of the village gymnasium there should be arranged wrestling matches and other sports popular in rural tracts, and the young men taking part therein should be encouraged with rewards and prizes. Townfolk when they go there should have interesting talks with these people and school boys, and college students when they visit the countryside must be induced to assist in doing similar work. The example of Japan and China in this respect is worth imitating.

There are only a few large organizations worth the name that are at present doing any organised work on a non-sectarian basis in rural parts. The Servants of India Society, with the help of the Devadhar Malabar Reconstruction Trust, is attempting some work in Malabar. The Poona Seva Sadan Society has started a rural centre at Baramati in Poona district and intends to extend its activities. The Viswa Bharati at Bolepur had chalked out a scheme for such work under the inspiration of an American worker at Santiniketan, and the Y.M.C.A. (Rural Section) are doing very useful work at Coimbatore. But these are scattered attempts, few and far between. In the interests of rural India, the country is ripe for the starting of a large number of organizations all over India, and co-operators, of all others, are expected to take the lead. Many of the existing organizations named above are seriously discussing this problem of rural reconstruction. Even the Provincial Co-operative Institute, Bombay, has some enthusiastic members whose heart is set on this activity. The main question is, how to get *men and money*? It is time, therefore, for Government to encourage indigenous organizations to take up such work and assist them with money and material. Even if Government were to set up a separate department, like that of the Commissioner of Labour in Madras, the need for the co-operation of the non-official agency would not be obviated, owing to the immensity of the problem and the intricacy of its solution.

APPENDIX I.

COPY OF LETTER NO. 151 OF 1926, DATED 17TH NOVEMBER, 1926, FROM S. N. KESHWAIN, ESQR., DISTRICT HONORARY ORGANISER, C.S., SIRSI, TO THE ASSISTANT REGISTRAR, CO-OPERATIVE SOCIETIES, S.D. DHARWAR.

With reference to your No. A.D.M. 20, dated 23rd April, 1926, I have the honour to submit my report on the economic enquiry conducted by me into the Banwasi Agricultural Co-operative Credit Society. I have given below the facts elicited, in order of the questionnaire supplied by you.

1. The Society was registered on 18th May, 1918. A comparative statement of progress of the Society is as under:—

Comparative Progressive Statement.

Year.	No. of members.	Deposits.	Outside loans.	Reserve Fund.	Other funds.	Working Capital.	Loans out-standing.	Net profit.	Remarks.
1918-20	93	2,037	1,000	—	—	3,037	3,055	71	
1920-21	153	4,835	2,000	71	—	6,906	6,408	269	
1921-22	186	7,317	2,250	295	12	9,874	9,198	22	
1922-23	216	12,208	2,400	318	12	14,938	12,910	255	
1923-24	203	12,100	4,800	558	27	17,485	12,229	391	
1924-25	202	16,464	2,900	921	56	19,142	18,165	136	
1925-26	206	17,011	8,900	1,039	75	27,025	26,036	284	

2. I was able to examine the economic conditions of 66 members, who were mostly old, out of a total number of 206. I did not go into the cases of those who had joined recently. Some members, who were sick, and also those who were not in the village, could not be found. So I had to base my report on the strength of the information gained by examining the economic condition of the above-mentioned 66 members. But it will give an accurate idea for the purposes of this inquiry. I give below the totals of the figures obtained from the position of those members. Their assets, when they entered the Society, amounted to Rs.137,485, and they now amount to Rs.165,410. Their indebtedness was Rs.31,060 at the time of joining, and it is Rs.25,315 on this day. Their total income came to Rs.20,140 at that time, and now comes to Rs.28,195. It can be seen from the figures that their assets have increased by Rs.27,925 since they joined the Society. They have been also able to reduce their debts by Rs.5,745 during the same period, and deposited Rs.2,627 in their respective accounts. So it can be safely said that they have been benefited to the extent of Rs.36,297 since they joined the Society. Besides this, six of the members had to spend Rs.2,900 in all for the marriages of their sons, daughters and other relatives. This is also an indirect gain. Two members who had spent Rs.550 on the purchase of bullocks lost them during the last epidemic of rinderpest. Deducting all these items, the total gain comes to Rs.36,297. The total income of the members was Rs.20,140 at the time of joining, and it now amounts to Rs23,195, which gives a difference of Rs.8,055 in their favour. Even making some allowance for the rise in food prices in recent years, it can be seen that their income has appreciably increased. So, on the whole, as a result of their joining the Society for mutual benefit, they have been able to improve their economic conditions a good deal.

3. Rural indebtedness was very high before the starting of the society (1) as *sowcars* used to charge usurious rates of interest, say from 18 to 36 per cent. The village *sowcars'* rate now varies from 12 to 24 per cent. There is a Marwari in the village, who does money-lending business, but few villagers go to him for accommodation. Most of his clientele now comes from the villages of the Mysore territory, which are at a distance of a few miles from Banvasi. (2) The evil of exaction of " cried up " documents for an under payment is also minimised to a great extent as the village *sowcar* finds in the society a competitor in his line.

4. The requirements in the conduct of agricultural operations are adequately financed in the majority of cases, but there are a few agriculturists who require large amounts to finance their agricultural operations. There are also some agriculturists who carry on their occupations on a small scale, such as maintaining good bullocks and carts, and deal in paddy and rice in the neighbouring villages. They require larger amounts, and they have now to go to *sowcars* for additional amounts. The society is advised to fix the normal credit of such members and obtain the sanction of the Assistant Registrar for special limits beyond those fixed in the byelaws for granting them additional loans for current needs.

5. No land improvements of a permanent nature are effected, as one side of the village is washed away by the river Warda during the rains. So capital, if spent in these schemes, is not considered to be safe.

6. (*a*) No improved strains of seed or improved tools of husbandry are introduced as yet; (*b*) the pressure of population is not such as to create a tendency to lead to intensive cultivation.

7. There is no question of fragmentation of holdings as sufficient lands are available for cultivation.

8. No efforts are yet made for the improvement of the breed of cattle.

9. The society has advanced Rs.4,350 in all to seven members for redemption of old debts. These debts have been redeemed by the member himself and not by the society.

10. The deposits held by the 66 members examined amount to Rs.2,627. The total deposits in the society amount to Rs.17,011. The members have saved something.

11. (1) There is no organisation as yet to sell their produce, viz., paddy, through a sale society; (2) there is a taluka development association, which has been attempting better methods of production.

12. There is a primary school in the village, and the standard of living is improving gradually.

13. The society has helped, though on a small scale, in (*a*) the curtailment of expenditure on ceremonial and in (*b*) reducing litigation. The society is a training ground for a consensus of a common brotherhood and to teach civic responsibilities, but the members have still to learn much in this connection.

14. The money market is a little bit easier owing to the operations of the society.

15. No alienations of lands have taken place through the default of members.

16. There is a general improvement in the outlook and vision.

Oral Evidence.

49,304. *The Chairman*: Mr. Devadhar, you are President of the Bombay Provincial Co-operative Institute?—Yes.

49,305. You have interested yourself in the co-operative movement now for many years?—For nearly 20 years.

49,306. And you are an enthusiastic worker in the cause?—I want to be one.

49,307. Your note is very full of the various points that you bring before the Commission, and there are very few questions that I need put, as you explain yourself on the various points very plainly. You suggest, in answer to our Question 1 (*a*), on page 219 of your note, that an institution of the type of the Board of Rural Economic Inquiry should be formed in each Province? How would you constitute that body?—I would constitute that body with the representatives of non-official organizations working in that direction, together with some representatives of the Government departments that are carrying on that work. I would also add a few well-known public workers who are interested in the promotion of economic improvement.

49,308. How far, in your view, is it necessary to train investigators for this work?—Those who would be on this Board would certainly be people who were highly trained.

49,309. But the actual investigators carrying on work in the villages would require special training, would they not?—Yes, under the direction of the men who are already trained.

49,310. Would you turn to page 220 of your note where in answer to our Question 1 (*a*) you say: "The Institute, however, having undertaken such work from the co-operative point of view in this line in the past has now definitely approved of the policy of such economic inquiries in important tracts." What agency is carrying on this work for the Institute?—The agency which we employ is some of the members of our Institute who have made a special study of economics; and we also enlist the help of officers of the Agricultural and Co-operative Departments, as also of the Education Department, in collecting information, and further also of the judicial officers stationed in various places. I might mention, for instance, that the first kind of inquiry of this nature was started in the districts of the Konkan, because it was noticed that the co-operative movement had not made much headway and we wanted to get at the root of it. Accordingly, we instituted a committee the Secretary of which was Professor R. M. Joshi, who is Professor of Economics at the College of Commerce. Then we took a gentleman who was a Member of Council and closely connected with one of these Konkan districts. There was also another gentleman similarly connected with another district. I went over with these friends just to see that they were not side-tracked and not involved in other controversial questions with which the inquiry, which was a co-operative economic inquiry, had no concern whatsoever, as for instance, questions relating to communities warring with each other, and other interests.

49,311. And were you satisfied with the skill of the workers who actually carried on the inquiry?—Yes, we had a questionnaire framed and sent round. We also went and saw officials, and other people similarly met us and we asked them questions; we went to different places to satisfy ourselves that the information supplied was correct. We also had access to some of the Government records.

49,312. Had you specially trained these men before?—No; they were people already trained; only they wanted to know what kind of policy should be maintained and I thought it was necessary to go with them,

and as a matter of fact the Secretary himself pointed out a difficulty to me, namely that he might be side-tracked. There was no further need for training them, because the Secretary is a man well known for his knowledge of economics; he was in England for three or four years and he was a distinguished student of the School of Economics, the social sciences and politics.

49,313. On page 220 of your note you are dealing with agricultural schools and you say, in answer to question 2: "I am, therefore, strongly inclined to advocate an increase in the number of agricultural schools and agricultural classes of the primary type." What agricultural schools are you thinking of there?—We have agricultural schools which are meant purely for the teaching of agricultural and rural economics of an elementary type. They are not schools which are called agricultural bias schools, which really means an addition to a full grade primary school of an agricultural class teaching the subject for an hour or so. I mean a school which has a regular programme, teaching a little of arithmetic, account keeping, the principles of co-operation, the use of agricultural implements and so forth, giving not only an agricultural bias but a real insight into agricultural working of agriculture.

49,314. Do you include the Loni school in that category?—Yes; there is one in the West Khandesh and Dharwar districts, another in Gujarat.

49,315. What personal experience have you of the working of these schools?—I know that latterly the Loni school has become somewhat unpopular; it was not so much the curriculum as the personnel which mattered. The school itself is popular and it would become more popular if Government would continue to give the same facilities.

49,316. Have you made any personal inquiry into the after history of the students who have been through the Loni school?—Personally I have not made any.

49,317. Have you formed any view as to whether these boys when they leave the Loni school go back to their homes as better agriculturists?—Yes; I have met some people who have told me that the knowledge of agriculture which they picked up at the agricultural schools has stood them in good stead.

49,318. On pages 221 and 222 of your note you are dealing with the matter of education and you suggest that an attempt should be made to educate adult women. Have any attempts been made in that direction?—I do not know of any attempts having been made, but I am strongly of opinion that such attempts should be made. A small attempt has been made in that direction by one of the organisations with which I am connected in Poona, and at present we are teaching sewing, embroidery work, and so on, giving them primary education and a little knowledge of hygiene, first-aid and sanitation, and we have also provided facilities for nursing. My idea is to get all the agriculturist girls from the neighbourhood so that an educational bias may be given to their life; they would then be able to imbibe new ideas and spread them among the villages. I think myself that the need of educating women in a manner suited to their circumstances is as great as that of educating the agriculturists themselves.

49,319. In Bombay there is very little demand for education amongst women; is not that so?—The smallness of the demand is more or less a common feature all over India.

49,320. You have to promote that demand?—Yes; at present among the women of school-going age there are only 5 per cent. who go to school, and in comparison to men there are only two women in every hundred who can read and write, as against 17 men.

49,321. Would you turn to page 222 of your note where, in answer to our Question 3 (*a*) you say: "Several departments of the Bengal Government closely associated with the improvement of agriculture and the agriculturists have been able to persuade the Eastern Bengal Railway to form a special train with a large number of carriages." What is the source of your information there?—The source of my information is a paper which is published here and is called "The Indian Social Reformer."

49,322. Beyond that you have no information as to the details of the scheme?—The information is given in that paper in detail. I have read of such demonstration trains moving about in America and I thought that they had copied the American model. A similar effort was made, I am told, in Baroda.

49,323. Would you turn to page 223 where, in answer to Question 4 (*c*) (i), you say that the definitely accepted policy of co-ordination in using more vigorously the co-operative movement in a spirit of greater friendliness is carried out wholeheartedly. Then you say "I am making these observations here because I have heard complaints of want of sympathy and appreciation of difficulties." Would you tell us a little more about that because I think it is important?—My idea is that these departments which I consider to be nation-building departments should look upon their own particular job as part of a whole, and should not think of obtaining more credit for any particular department and less for another. If they would work harmoniously and wholeheartedly there should not be any room for complaints about any particular department. I have heard complaints from the Agricultural Department of co-operators not helping them and I have also heard complaints from the co-operators to the effect that the agricultural officers do not enter into the spirit of their work wholeheartedly. I do not wish to charge any particular department with lack of sympathy and appreciation, but I would certainly like to see a principle laid down which requires the inculcation of a spirit of co-ordination, a spirit which should be manifested by all the officers who are responsible for these various nation-building departments, and especially that they should utilise the co-operative machinery because in rural areas there is no other organised machinery for propaganda, and as propaganda is the basis of almost every departmental work it could be carried out very well with the help of the co-operative organisations.

49,324. Do you feel that the Agricultural Department might use the co-operative organisation far more than is at present the case?—They have begun to do it now, but I think there is still greater scope for that. There was a time when probably they did not believe in the utillity of the co-operative agency, but I might now say that the Director of Agriculture himself, in two or three places, has given expression to the belief and conviction that that agency is the best that could be used for the furtherance of agricultural activity and agricultural organisations. In fact, he calls it a sort of monumental work while talking of the cotton sale societies of Dharwar district. For that attitude I believe the original position of the two departments in our Presidency was responsible; for some time the Department of Co-operative Societies was under the Agricultural Department; then they came to be separated and put under two heads, but I believe that the old feeling that one is higher than the other still prevails. I have heard from agricultural officers themselves, Agricultural Inspectors and Fieldmen, that but for the help and co-operation which they receive from the co-operative societies and Central Banks, the work of the taluka development associations which have been newly started could not have been as successful as it is, because there were limits to their activities and resources so far as these officers of the Agricultural Department were concerned; they were able only to bring a very limited quantity of seed, and that limited quantity would very soon become exhausted.

49,325. In answer to our Question 5 (*a*), you say: "There are many difficulties in the way of agriculturists in getting at once cheap, prompt and adequate credit. The only remedy to remove them is a widespread system of co-operative finance." To what extent do you think the co-operative movement in this Presidency is at this moment succeeding in meeting these needs?—I cannot give the exact proportion, but the other day when I was touring in the Punjab I came across a statement that co-operative credit or finance was satisfying something like one-eighth of the total need of the agriculturists; so that I think we, here, are not at all backward in the matter of supplying finances to the co-operative movement. Probably we are a little ahead of the Punjab, and I think I would not be wrong in saying that we are satisfying something like between one-fifth and one-sixth of the total current needs of the agriculturists, and it must be remembered that our Province is smaller than the Punjab.

49,326. Would you turn to page 226 of your note, where, in answer to Question 6 (*a*) (iii) (*b*), you say: "It is believed that the scheme of relief provided in the sections of the Deccan Agriculturists' Relief Act (XVII of 1879) is designed to lighten the agriculturists' burden of debt, and the application of the provisions of this Act will go much further than the Usurious Loans Act. An intelligent propaganda will be necessary in this direction." What kind of propaganda do you suggest?—At present it is believed that many agriculturists do not know to the full extent the relief that is given to them, except probably those who had had occasion to go to a pleader.

49,327. They do not know the terms of the Deccan Agriculturists' Relief Act?—All of them do not know, except those who had to go to the pleaders. Ample provision is made to give them the necessary relief in their difficulties, and the co-operative societies might take the initiative in the matter of securing the wholehearted willingness of the people themselves to take full advantage of this relief. Such propaganda was attempted in Burma, and one of my friends who now is the Secretary of the Institute made the suggestion to the Bombay Government through the Registrar, but Government felt that it would mean something like setting one class against another and were therefore not very enthusiastic about adopting that procedure.. But I think that the Institute and the co-operative societies can easily do it.

49,328. Would you turn to page 228 of your note, where, in answer to Question 8 (*a*), you say: "Government must revise their policy of expenditure on irrigation and view it from a different angle of vision, so far as the famine-stricken districts in the Deccan are concerned." The works existing in the Deccan tract are mainly, if not wholly, protective?—Yes.

49,329. What exactly is this change of view which seems to be necessary?—Generally they consider that irrigation, like other commercial concerns, must pay. My own view is that the payment which they expect should not only be the actual returns in irrigation revenue but also in the contentment and happiness of the people.

49,330. Is that not what Government have in mind when they sanction an unproductive scheme?—Yes, it is. But there is far greater scope for that. There was a report recently issued on Irrigation in Bombay. Several schemes were put before us, and only a few were given chances. When they examine such schemes Government, having to deal with finance, naturally consider whether they would be paying or be a burden on the provincial finance. My own view in this matter is that the benefit which would accrue to the agriculturists from such investment would be such that the advantages would outweigh the losses which Government might be put to. The change in the angle of vision I refer to is that Government should look to the indirect benefits resulting from increased outturns and increased acreage under cultivation.

49,331. You want further protective schemes?—Yes. There are also small schemes like tanks, apart from the big schemes.

49,322. Would you turn to page 232 of your note? You are dealing there with Question 17 (*h*). As Honorary Secretary of the National Baby and Health Week Association you make certain remarks. How far is the National Baby and Health Week Association urban in its outlook, and how far rural?—Like many other organisations in this country, our body has begun in towns and is extending its operation towards the villages.

49,333. *Professor Gangulee*: Do they?—Oh, yes; they do.

49,334. *The Chairman*: I ask you how far this association is rural in its outlook at this moment?—In the sphere of its work, nearly two-thirds.

49,335. Two-thirds rural and one-third urban?—If we exclude only the big towns.

49,336. How far does it administer to the rural population and how far to the urban?—I would include taluka towns among the rural population, the organisations there administer to the rural population in the villages. If we only exclude the big towns and municipalities, it may not be exactly two-thirds, but it is a very big movement and every year we are extending. We are sending large quantities of materials for the rural areas; we visit them and arrange for these shows.

49,337. Do you carry on work in the homes of the cultivating classes?—Yes; we go to the villages, and there is nothing to prevent us from working in their houses. In fact, special effort is made to attract a large number of village people to these big shows and exhibitions.

49,338. Would you turn to page 234 of your note? You say: "One of the important remedies for their improvement would lie in the introduction of uniform weights and measures; and secondly, in the formation of associations, with definite rules, to regulate the conduct of the dalals or the agents of the middlemen." Now, as regards the first point, do you think that public opinion would support drastic legislation?—I think so, now.

49,339. And necessary administrative inspections and so on?—Yes. There are already big market committees in big cotton centres. If rules are made at these big centres for the conduct of dalals, for the keeping of accounts and so on, I think it would provide a considerable amount of check and minimise the kind of exploitation that goes on.

49,340. On page 235, in answer to Question 22—Co-operation, you say: "Having regard to the innumerable difficulties in the way of the workers in the field of co-operation, it will be conceded that the success which the movement of co-operation has achieved is very encouraging, and there are many among the outsiders interested in this movement who consider the measure of success phenomenal." Do you regard the measure of success as phenomenal?—If I mistake not, I remember to have read the remark of Mr. Wolff that, considering the backwardness of the country, the progress that was made in India was something phenomenal. During the last 20 years we have built up a network of something like 70,000 co-operative societies with a membership of nearly 23,000,000 or 24,000,000 and a working capital amounting to nearly 50 crores. I think, considering the innumerable difficulties in India in the way of such work, this growth might be considered phenomenal. My impression is that Mr. Wolff himself has given expression to this sentiment while reviewing one of our provincial reports.

49,341. Are you satisfied with the educative effect of co-operation in this Presidency?—Yes. That is one of the most valuable factors or assets of the co-operative movement.

49,342. Would you turn to page 237 of your note? You say there: "It is a definitely accepted policy of the department now to leave to

the Institute all matters relating to propaganda, education, training and instruction of the members of the co-operative societies, together with supervision." I have no doubt that that is the policy, but how far is it the practice?—I think I would not be wrong if I said that it is the practice. Of course, in the matter of supervision we have not yet been able to set up as full and complete a machinery as we have been able to in the matter of co-operative education, but the Department would only be too pleased if we were to take full responsibility for supervision of these societies. I have been telling the department that, provided resources are made available to the Institute, the Institute will be prepared to take up that responsibility also.

49,343. Have you studied co-operation in the Punjab?—Yes; I have made myself familiar with the growth of that movement in the Punjab.

49,344. Is there a difference between the two systems, the one in this Presidency and the one in the Punjab?—The essential difference is this: in the Presidency of Bombay the non-official co-operators have taken a great lead and have made a very large contribution to the growth and success of this movement, whereas in the Punjab I do not think an effort was made to that extent to enlist the sympathies of non-officials as a class, but the officials, who were capable and competent persons, were content with the work which they themselves could do, and I think they have done it well to some extent.

49,345. *Mr. Calvert*: Are there not about three times as many non-officials in the Punjab as in Bombay?—I do not know the exact proportion.

49,346. *The Chairman*: Three times as many non-official workers in the Punjab as in Bombay?—May I know what kind of non-officials is meant? I may even agree that there are four times as many. I have myself gone round and heard several criticisms and complaints at many places. I was even questioned as to what business I had to go and see the co-operative movement there.

49,347. In the Punjab?—Yes. I was going from Lahore to Gojra. There was a gentleman travelling with me who got down at Lyallpur. He asked me whether I was a merchant; I told him I was not. He was persistent in finding out exactly what I was; I told him I was an ordinary non-official doing some little work for the country. He was a well-educated man; he knew English very well. He told me: "What have you to do with the co-operative movement; it is an official's business. We, here, feel that it is officialised; it is managed by officials, and the non-officials have no concern with it." Not only there, but at two or three other places also I heard the same views. I do not complain about it, because I feel it is the duty of the officials to interest themselves in the work; but my only criticism is that more effort could have been made to enlist the sympathies of the so-called non-officials. I believe their association would have been a source of strength to the movement rather than a source of weakness.

49,348. *Professor Gangulee*: What procedure would you suggest to Government to enlist their sympathies?—If any officer of the Co-operative Department wants to start a new type of society in a town or area, he should try to find out if there is any leading non-official in that particular town or area who really knows something about, or is dealing in, that business, and prevail upon him to assist in the formation of the society, and in the later stages supply the supervision of the society and all that kind of assistance.

49,349. *Mr. Calvert*: Would you tell the Commission what you mean by the term "non-official"?—By the term "non-official" I mean one who is not paid for his work.

49,350. Do you exclude the cultivating classes?—Not at all.

49,351. Has not the Punjab three times as many societies as Bombay?—I think you have got 15,000 societies, and we have 5,000. But our membership is slightly higher than in the Punjab.

49,352. We have 15,000 non-official chairmen; you have 5,000?—It may be that your 15,000 centres are weak and our 5,000 are strong.

49,353. Why do you exclude them (the chairmen of the Punjab societies) from the term "non-official"?—I do not exclude them; I welcome them. But I believe that the educated non-officials should take up the work; it is their function to teach the cultivating classes, prepare them for the task, and then retire and take the larger field where their initiative is necessary.

49,354. *The Chairman*: Did you manage to get into touch with the individual members of the co-operative societies in the Punjab?—Yes.

49,355. Did you talk to them?—Yes, I did.

49,356. Did you form the impression that they were well instructed in the principles of co-operation?—Yes; I knew their worth well.

49,357. I mean the individual member of the society; did he understand the principles of co-operation?—He understood the principles.

49,358. So that, you think the educative side of the co-operative movement in the Punjab has been well developed?—Yes, as much as it is possible with such a large basis of organisation. What I mean to say is, there was a membership of something like 405,000 people; it must be humanly difficult for any organisation to reach all of them. From the answers to my queries I found that the members know what the principle of co-operation is, what the moral side of it is apart from the economic side of the movement.

49,359. Do you feel that your official side in Bombay is sufficiently strong? The development of the official side in Bombay is not incompatible with the strengthening of the non-official side?—It is not incompatible. Here we have a clear-cut division. As a rule the officials of the Co-operative Department concern themselves with the registration of societies; they examine the bye-laws, see whether the society is well formed; when they get a report they see whether the preliminary work has been done well; they then do the statutory duty of audit and occasionally do some inspection work. Beyond that, we do not expect the officials to go. There is scope for a larger number of officials to do that kind of work well.

49,360. Do you not wish to see the official side in this Province strengthened and extended as it has been in the Punjab?—Not to that extent. I would give the Registrar here one or two deputies, because the work is growing. I would like to have one or two more Assistant Registrars to be in charge of arbitration or liquidation. At present these functions may absorb much time of the officers of the department, and the real work of the department may not be properly carried out. I would, therefore, give the Registrar more staff, but not any additional powers or functions.

49,361. Would you turn to page 242 of your note? You say there: "The new scheme of *Village First-Aiders* started by Major-General A. Hooton, the present Surgeon-General with the Government of Bombay, has worked satisfactorily and it deserves, therefore, to be extended." What exactly is a village first-aider?—Certain districts are selected, and from those rural areas schoolmasters are brought over to the headquarters of the district to be trained in the elements of first aid, dressing and things like that. Their course extends over three months. They are given half a dozen stock mixtures when they are sent out, and it is made clear to them that they should not look upon themselves as doctors, or in any way substitutes for doctors, but should only treat small complaints and render first aid in the case of major complaints, and put the men suffering in touch with the nearest available doctor by or with the hospital.

49,362. They are not women?—No. This is not women's work. But we want a number of midwives. There are a large number of midwives distributed all over the taluka areas; they reside in taluka headquarters and from there they penetrate into the villages.

49,363. At the bottom of the page you say: " Under the auspices of the village gymnasium there should be arranged wrestling matches and other sports popular in rural tracts, and the young men taking part therein should be encouraged with rewards and prizes." Who is to be responsible for helping these village gymnasium societies?—There are village gymnasiums already in existence; that is a feature of the Deccan. In every important village they have a gymnasium; that gymnasium has its own membership and is run in its own way. If the local officials and co-operative societies could take the lead, and bring together the different clubs and arrange wrestling matches and give prizes to the winners, it would promote the cause of physical culture even among those who are at present lukewarm about it.

49,364. *Dr. Hyder*: Do you not have professional wrestlers at these village centres?—There are at some, but not all, especially in villages in the Deccan. I would organise wrestling matches for young men and encourage them by rewards and prizes. Matches of professional wrestlers take place in big towns and, on occasions, at big fairs. For instance, the Poona Gymkhana attracts professional wrestlers from all over the Deccan and even from the Punjab. But I am talking here of village people who are not professional wrestlers but are only interested in physical culture.

49,365. Are these gymnasiums resorted to by all communities?—Yes; they are not caste institutions.

49,366. *The Chairman*: You say, in the first paragraph on page 242, " The Servants of India Society with the help of the Devadhar Malabar Reconstruction Trust, is attempting some work in Malabar "?—Yes.

49,367. Is that the only area in which the Servants of India Society is working?—No. The Servants of India Society has got a Bhil Seva Mandal. The Bhils are a class of aborigines, and in the district of the Panch Mahals they have a large population. One of the members of the Servants of India Society is working there. There is a big network of schools, dispensaries and boarding houses, and he is carrying on educational and co-operative work. I have simply indicated the direction in which the Society is doing that kind of work.

49,368. What is the scope of the work carried on by the Poona Seva Sadan Society?—At present the work of the Poona Seva Sadan Society is educational, medical education and medical relief. That includes also industrial education.

49,369. How far is that Society's work urban, and how far is it rural?—At present it is largely urban, but it does not ignore the rural side, because it has already got one centre at Baramati, which is in the midst of a large group of co-operative societies, and the object is that it should be ultimately useful to the co-operators.

49,370. Have you any midwives working in the villages?—We have one in Baramati; and we are sending others, and, though they are not settled in rural areas, they are available to the rural people. For instance, we have got a hospital in Alibag.

49,371. How many have you working in urban areas, trained by you?—There are about 100 nurses and midwives trained through us.

49,372. In the main, your success has been urban rather than rural?—For the present it is. My ideal is to get them trained and make them cheaper, and later on get them into the rural parts also. But I would begin in areas with Municipalities. For instance, we have one working in Baramati,

which has got a municipality. I have to pay her something like Rs.45 a month, but I get from the municipality Rs.25 a month as a contribution towards that work.

49,373. It is the case, I take it, that in this country a midwife would be required to live in a village before her services would be generally made use of?—Yes. But even if she stays in a taluka town, she can certainly go round within an area of nearly 10 miles. She need not necessarily stay in the village itself. If she is easily accessible or available, I think her work will be equally useful to the village people.

49,374. Assuming that she has enough time and the opportunity to go round, so as to make herself known to the public?—Yes. That could be done by the propaganda she carries on. She has to do what is called in England district visiting work, and that makes her work sufficiently known, and the information concerning such work easily spreads.

49,375. *Professor Gangulee*: On page 225, in enumerating the main causes of borrowing, you state that deterioration in the productive capacity of the soil is one of them. Is that statement based on any actual analysis?—A friend of mine, by name Mr. Gharat, in the district of Kolaba, is a close student of agriculture and agricultural produce. He has estimated that the deterioration is to the extent of nearly 25 per cent.

49,376. In the productive capacity of the soil?—Yes. I think he has submitted a statement to the Commission; he sent me a copy of that statement for my information.

49,377. You attach a great deal of importance, I see, to rural economic enquiries?—Yes.

49,378. Has any attempt been made by your Institute to investigate any particular area?—Yes. I have submitted to the Commission two or three reports. There are one or two more, but the results are not yet published.

49,379. Are you satisfied with the agencies that have carried out these investigations?—Yes.

49,380. Are they trained in rural economics?—They live in the midst of rural areas, and they are very competent people. I would certainly consider them to be very well trained.

49,381. Under whose guidance do they carry on these investigations?—Under the guidance of the Institute and its branches. We have divisional and district branches.

49,382. In this note that you have submitted to the Commission, I do not see any reference to compulsory primary education?—Beyond the desire that it should be extended and made use of, nothing has been done so far in this Presidency.

49,383. Do you consider that public opinion in this country is ready for that measure?—At any rate, in some of the districts in the Deccan, it is ready. Several District Local Boards and Municipalities have sent their proposals to Government, and they would have adopted the schemes long ago if the Government had given the proportion of contribution on which they were insisting. Opinion in the Deccan is ready.

49,384. It is now a question of finance?—Yes.

49,385. Do you think that the District Local Boards are willing to tax themselves for the purpose?—The District Local Boards have already taxed themselves to some extent; almost all of them have raised their scale of taxation.

49,386. You are familiar with the agricultural education in the Province, and you say that you have only one agricultural college and six agricultural vernacular schools. Do you think there is a demand for agricultural education?—Not at the top.

49,387. But at the bottom?—At the bottom there is a great demand. In many matters the demand has to be created. If I know that such and such a thing is going to benefit the people, I am not going to wait till the people came and asked for it. If we had not started any high schools, nobody would have filed suits against Government.

49,388. You advocate an increase in the number of agricultural schools of the primary type, where the primary stages of agriculture would be taught to the students?—Yes, suited to their capacity, to create the necessary interest. I would create the necessary interest; I want these boys really to take to agriculture seriously when they begin their work in life. If they are a better class of students, i.e. those who wish to go to high schools, there should be provision there for their agricultural education.

49,389. At what stage would you give real agricultural education? At the primary or secondary stage?—I would begin the education of an agricultural boy at the primary stage, having a programme suited to his capacity and condition in life.

49,390. In addition to the three R's?—Of course. The three R's is the basis; you cannot do without that.

49,391. The main object of primary education would be to make him literate?—To make him literate and capable of understanding the information that may be placed at his disposal. The boys may belong to different professions.

49,392. Perhaps you are aware of the adult education movement in this Presidency. What led to the failure of that movement?—I know, because I was concerned with it from its very inception. The failure of it was due to the fact that we took the boys up to the second or third standard only. There was nothing done to keep up what we call follow-up or continuation work. If that could have been done, and if Government could have spent money as they are at present doing in the Punjab, the results might have been different. In the Punjab, the Rural Community Board spends a lakh of rupees every year, and the Registrar gets Rs.10,000 placed at his disposal for encouragement of adult education. I drew the attention of the Bombay Registrar to this matter by sending him a note three years ago, but we have not made any headway. If these schools in which we are attempting some kind of spread of literacy among adults be supplemented by what we call continuation classes, I think literacy will be preserved or kept up and the interest will be a genuine, abiding interest.

49,393. We understand that this adult education movement started by Sir Vithaldas Thackersey worked for five years, and after his demise it stopped. Why was that?—The reason was that the machinery was costly. Even Sir Vithaldas Thackersey himself reduced, by half, the original grant during the second stage of the experiment.

49,394. Was the failure due to lack of funds or lack of organisation?—I might say it was due to both.

49,395. You say that the first difficulty in adult education is the lack of tradition?—Yes, that is true.

49,396. What do you actually mean? Have we not got the *kathas* and other systems?—That is another type of education. The people go to the *kathas* more for entertainment or interest. But if by adult education we mean securing on the part of the pupil the ultimate ability to cultivate the capacity to go to the sources of knowledge, then I think the *kathas* would not serve the purpose.

49,397. Perhaps you would agree with me that all our traditions support this movement? Take the case of the Mahabharata and the Ramayana; these epics are still loved in this country and they are made known to rural folks only through the medium of adult education?—Certainly. it

is education through the eye and the ear, and I certainly will not begin adult education with the book lessons or the slate lessons. The *kathas* would certainly be a very good complement, but I would not stop there. We are not going to arrange for *kathas* for all classes of people. The man must be made capable of possessing some kind of instrument by which he will go on making additions to his knowledge

49,398. I mention *kathas*, because it is an indigenous organisation, and it is traditional?—But you are referring to the Bengal *kathas*. I think that is more religious than educational. If the man who is preaching at these *kathas* were to talk about Japan and America, people would not go there.

49,399. You can modernise this movement?—Yes.

49,400. You refer to taluka development associations. What is the relation of your Institute with that organisation?—These taluka development associations are registered under the Co-operative Societies Act, and our relation with them, as such, is that we can enlist them as members of the Institute, and the Institute has recognised their assistance to the extent of relying upon their supervision, if they could carry it out within their area. In a way I may say that we look upon them as one of the necessary links in the chain for the development of co-operative work in rural tracts.

49,401. What assistance do they derive from your Institute?—We do not give them any funds; they do not want any funds just now.

49,402. Do you send them any of your literature or assist them with your views?—Our literature is available, and the assistance of the members of the District and Divisional Institutes is available. We recently held a conference of these associations in Poona, along with the Provincial Co-operative Conference that was attended by the Commission.

49,403. You are familiar with the work of the taluka development associations. Could you tell the Commission whether that organisation could ultimately serve the purpose which you suggest on page 242, that is to develop the spirit of social service or community service?—Yes. I think they might help, because the association is a body of agriculturists and non-officials. By non-officials I mean educated people who are not necessarily agriculturists, but they are interested in promoting rural welfare. To that extent, they would certainly be the centres of social service or community service in that area.

49,404. You say that *taccavi* ought to be given through co-operative societies. You say it is adopted in this Presidency. It is also being advocated in other Provinces of India?—Yes, in Madras.

49,405. What prospects do you find in the direction of developing non-credit societies in this Presidency?—I think we are not altogether in a very unsatisfactory condition. We are making good progress, and we have got something like 250 agricultural non-credit societies.

49,406. These non-credit societies are financed by the credit societies?—No, not all.

49,407. They are quite independent?—They are quite independent. They have got the share capital system, and from the easily available central financing agency they get their finance.

49,408. On page 233, you suggest the formation of co-operative agricultural colonies in Sind under the Sukkur Barrage scheme. Could you tell the Commission whether there are any such colonies in this Province at present?—None.

49,409. Are there any such colonies in India, organised on a co-operative basis?—I think if the towns that are now created all along the big canals

in the Punjab be called agricultural colonies, for instance, the towns of Gojra and Lyallpur and several other places, there are such colonies in India.

49,410. They are colonies right enough, but the question is whether they are co-operative agricultural colonies?—They are not co-operative agricultural colonies in that sense, but the ones that I advocate will be truly co-operative.

49,411. You have no precedent for it? You are suggesting something quite new, which has not been tried in India yet?—Yes, but there is no reason why it should not be tried.

49,412. *Sir James MacKenna*: They have them in Burma, in point of fact?—I have not heard of it.

49,413. *Dr. Hyder*: On the question of officials *versus* non-officials, I was wondering if you would agree with me that although there might be many disadvantages in having officials, there is surely one advantage, and that is that officials do restrict themselves to co-operation only, but there would be nothing to prevent the non-officials from dissipating their energies in too many directions?—In the first place, I should like it to be clearly understood that I am not one who is impatient of the association of officials or even of their advice, or to some extent their control. My point is that the field is so large, and, the movement being peculiarly of a democratic and popular character in its ultimate development, the work that has to be done must be contributed both by the officials and the non-officials. Those non-officials who come into the movement are not necessarily people who will always fritter away their energy. Whatever limited energy is available, they would certainly give to co-operative work.

49,414. They might have too many causes claiming their attention?—Yes. Take the case of a man like myself; it only means additional work to me. Other non-officials, when they have two or three hours to spare, will go and do that much work, and if they have a special liking for co-operation they will do that and nothing else. I know that the Secretary of the Institute, Rao Bahadur Talmakki, is a gentleman who in his non-official capacity is doing nothing else except this co-operative work.

49,415. He would be very good if he restricted himself to one kind of work?—In that case, there will not be much advance in a movement like this through non-officials like me; is that what you mean?

49,416. I do not mean that. You are the summit and glory of the co-operative movement. I have in mind the humbler people?—It depends upon their capacity and the opportunities for training and work they have got. After all, these different activities are so corelated that there is some string of social service running through, and one really helps the other. I have spent a good deal of my time in this kind of work, and in these various activities I have always found that the one helps the other.

49,417. That is so, but you must have specialised work also?—Certainly.

49,418. On page 225 you mention the rise in the cost of production as one of the causes which leads to borrowing. Is there not a rise in the selling price also?—There is a corresponding rise, but I am not sure whether the rise in prices is really proportionate to the rise in the cost of living.

49,419. That argument has been brought forward prominently, and I should like you to clear it up. What are the items involved in cost of production? The first is the seed?—Seed, labour.

49,420. Will there be two prices for seed?—On account of the general rise in the prices of articles, higher prices will be demanded for seed also, but I am more particularly thinking of the rise in the cost of production and not of labour alone; that is a great factor.

49,421. I will come to that. In the first place, there cannot be two prices for seed? There must be only one price?—There cannot be two prices at one and the same time.

49,422. Take labour. Is it a fact that, in your Presidency, farming is carried on with the help of hired labour?—In several tracts I think it has got to be done.

49,423. If a man has got a very large holding, he will employ servants? —Yes.

49,424. Is it not true that in the Bombay Presidency the major portion of farming is a one-man business?—One family.

49,425. They do not employ any labour?—They do sometimes require labour. When the harvesting is to be done, when the preparation of the land has to be done, they want additional labour, because, after all, a single family cannot do all the labour that is required.

49,426. And this occasional hiring of labour, you think, increases the cost?—That raises the cost.

49,427. For how many days in the year is this extra labour required?— It varies; it is required at different stages.

49,428. Is it required for ploughing?—If you mean by ploughing the preparation of the land, then it is required; at the time of weeding and also at the time of reaping it is required.

49,429. In your opinion, these occupations are not carried on by a single family?—No, unless there is a system of bartering, as they have it in some of the villages in the Konkan. There, several families go and assist one another, but it means additional cost; each man has to be paid 2 annas a day and they have to be provided with food.

49,430. *Professor Gangulee*: In your economic investigations, have you taken the trouble of finding out the cost of cultivation in detail?— As far as was possible. I have placed a book in the hands of the Commission which goes into these details with regard to the two districts on the Konkan side and a detailed inquiry is carried on in one village.

49,431. *Dr. Hyder*: Look at cause 9. You say: "In arid parts of the Bombay Deccan the succession of famines is due to insufficiency of rainfall, unseasonable rains, as also to excessive rain." Is that peculiar?—Sometimes it does happen; farming is subject all over the world to these risks. Recently we had floods, I think, all over India, even in the Deccan which is not as a rule subjected to excessive rains. I am told that this happens once in thirty or sixty years.

49,432. Therefore this cannot be a cause which is in operation all the time? —No, it is not in operation all the time, but I must say that this adds to the trouble. Even if a man suffers completely once in say 30 years it adds to his losses.

49,433. What is your estimate? How many years would you require in order to overcome the effects of famine?—These cycles vary; supposing there is good and sufficient rain which is well distributed in a single year then the yield may be good for two years, but if there is famine the next year the whole thing is wiped off. There are, as I say, different cycles of scarcity in different areas in our Presidency. In Ratnagiri which is in the Konkan districts the conditions are different, so also in the Deccan districts.

49,434. But surely no special district or tract has been marked out by Providence as the one which should be visited by a famine?—Not necessarily, but a combination of circumstances has resulted in some districts suffering more than others.

49,435. Then take the tenth cause, "Excessive burden on the limited resources of the land." What do you mean there?—It only means an addition to the population as some professions have no work for them. For instance in the Kolaba district the toddy drawers, on account of the rules made by the Excise Department, had to leave their work, and naturally the burden fell on the land.

49,436. *Professor Gangulee*: That is excessive pressure of the population on the cultivated land?—Yes.

49,437. *Dr. Hyder*: If that were the case then the agricultural wages should show a tendency to fall?—But all the people would not be made available for that work.

49,438. *Dr. Hyder*: Why do you say that there is practically no margin of profit?—I think that is an accepted fact now.

49,439. *Sir Chundal Mehta*: Accepted by whom?—By all economists.

49,440. *Dr. Hyder*: By the Bombay economists?—I think the school of Bombay economists has conclusively proved that the yield of land to-day is not sufficient to support a man and to enable him to fulfil his obligations to the Government and other agencies who finance and help him in his work. For instance the other day I was reading about the payment of assessment; it comes to something like 50 per cent. of the produce; of course that was in Madras. If necessary I can produce statistics to show that the income from a particular holding of, say, half-a-dozen families, is not sufficient to enable a man to tide over all the needs of his life throughout the year. There are several other obligations which he has to make good.

49,441. *Professor Gangulee*: Have you such family budgets at your disposal?—Yes, I have obtained some family budgets.

49,442. *Dr. Hyder*: You speak of Kabulis advancing money at varying rates of interest, ranging from 75 to something like 300 per cent. Could you tell me what is the amount of an individual loan?—Generally the amount borrowed ranges from Rs.25 to Rs.50, sometimes it may be more than that.

49,443. Is it not a fact that the Kabulis chiefly sell commodities to these people?—That is the case in other tracts; in Bengal they distribute cloth. There they carry on the moneylending business; as a matter of fact, in all big industrial centres they do it. They have also penetrated into the villages.

49,444. Do you not have some kind of a law for these people?—Not yet, but probably the co-operative societies will oust them.

49,445. *Sir Chunilal Mehta*: Were you very much surprised at the very excellent progress made in the Punjab after your visit to that Province?—I was not surprised, but I was certainly pleased to see such progress. I must say that the credit movement is strong, but some of the aspects of the movement which we have developed here have not, as a matter of fact, been developed at all; for instance, we have urban banks here whereas the urban movement has not been touched there. As a matter of fact, the prevailing sentiment or guiding policy seems to be that co-operation was intended only for the agriculturists and nobody else. Here in Bombay we have considered it to be the need of the poor, not only of the rural classes but also of the urban classes. I had a talk with several officials in the Punjab and they told me that that was the original line followed or chalked out for them.

49,446. Would you say that the educative effect of co-operation was more in evidence in the Punjab than here?—I cannot say that; the educative factor is a great factor and people who, like myself, are interested in the co-operative movement are not doing the work from the moneylender's point of view, but they are doing it from the educational as well as the moral point of view.

49,447. Therefore you would expect that the moral side of it was more in prominence here?—I cannot say; wherever co-operation has worked well proper emphasis has been laid on the moral as well as the educational side. I did not say that the Punjab was lagging behind, but I am not prepared to say that we are more backward than the Punjab.

49,448. You say that more money is spent by Government here in the Co-operative Department?—Yes; I think the amount which Government spends is something like 5 lakhs, as compared with about 9 lakhs which is spent in the Punjab.

49,449. *Mr. Calvert*: Are you sure of that figure?—I think so.

49,450. *Sir Chunilal Mehta*: Would you mind if Government spent more money here, while leaving the Co-operative Institute enough, or would you like them to give more grants to the Institute?—I would not ask Government to spend more money through the departmental agency except to the extent to which money is required for the addition of officers for better administration of the work, which is deemed necessary under the statutory conditions. But so far as money for propaganda, education, training, instruction, supervision, organisation and the like goes, I should certainly think that it should be spent throught the Institute and similar organisations, because thereby you not only get the enthusiasm or sacrifice of the people, but also more money. The budget of the Institute is something like Rs.75,000 to-day, both for headquarters and the Divisional branches. Out of that we only get some Rs.35,000 from Government, the rest being obtained from the societies and from the people. If Government recognise that their contribution would be an incentive to public contributions and public services, it would go a long way to help the position.

49,451. *Dr. Hyder*: What is the amount contributed by the people individually, apart from the societies?—It amounts to about Rs.5,000 from individual members and Rs.2,000 or so from Patrons, Life members and Associates, but it is very difficult to say how much it would amount to definitely; it may be Rs.20,000, as, for instance, during the last two or three years in connection with our Institute Building; we collected more than Rs.40,000.

49,452. *Sir Chunilal Mehta*: What arrangements have you got for the inspection of societies, for seeing that they have really learned the lessons of thrift and co-operation and so on?—The machinery we have got is the district branches, and we have got our supervising unions. The Inspectors of supervising unions and the members of the managing committees of these unions generally move about.

49,453. Do you think that is enough?—No; much more is necessary to obtain better results, and it is with that object in view that I am clamouring for larger grants from Government.

49,454. How would you use those grants?—In replenishing the resources of the supervising unions. It may be necessary to have more than one man in charge of a union, because, as these unions develop, there will be quite a lot of work, the supervisors will have to tour in the villages and carry on the work of supervision, instruction and training. Then we propose to have schoolmasters; at present a class is being arranged in West Khandesh where schoolmasters are being given regular instruction so that during their leisure moments they may deliver lectures, talk to the agriculturists and make themselves useful in various ways. Then again, we propose to have propaganda officers, and work in connection with this has already begun.

49,455. You rightly devote a very important portion of your evidence to the welfare of the rural population. Do you consider that you will be able to achieve it by non-official agency?—I would say by non-official direction. Here we are both working so well hand in hand that I do not think there is anything like a difference of policy or difference of objective between the officials and non-officials. We share the mutual benefits, and I must say that we are getting on very well. But ultimately I would certainly like to see the non-official agency do the work, because I consider that if they are entrusted with the responsibility they will get more funds and also men who may be induced to work on the basis of self-sacrifice, and this probably would not be the case with the Government officials.

49,456. From that point of view, you welcome the taluka development associations?—Yes.

49,457. You consider they have done good work?—They have done very good work.

49,458. Do these associations get any assistance from your Institute?—No. These associations have a membership, and they collect money by subscriptions, and Government gives them a contribution equal to the sum raised by subscription, subject to a maximum of Rs.1,000. Moreover, these associations concern themselves with co-operation, credit and non-credit. The Institute has a larger sphere of work than merely development of credit and non-credit work.

49,459. But do you give any guidance to these people?—Yes, whenever they want it. When I or the officers of the Institute move about we see what their difficulties are, and we try to remove them.

49,460. Do you think the time has come for extending the scope of these development associations?—Yes.

49,461. They are now dealing with too large an area; is that your view?—So far as the present scope of their work is concerned, it may not be too large; but if the taluka development associations attempt to do more work than they do at present, say, in the sphere of cattle-breeding which is closely connected with agriculture, or other questions of husbandry, then I think either the area will have to be narrowed or the staff will have to be strengthened.

49,462. You want them to envisage the rural welfare problem as a whole?—Yes; in its entirety.

49,463. Not merely agricultural demonstration?—And not merely the economic side.

49,464. Would you restrict the area over which a body like that works?—The very scope and nature of its work must restrict its area. Any association that comes into existence to promote the economic welfare of an area will create that soil which is necessary for the promotion of culture and a higher and wider outlook among the people. From that point of view I would welcome them as useful adjuncts to our Institute.

49,465. Do you think a great impetus would be given to that kind of work if we had suitable people to live in the villages?—They must live in the villages.

49,466. *Professor Gangulee*: Do the office-bearers of the taluka development associations live in the villages?—They generally live in rural tracts; they are drawn from the villagers.

49,467. *Sir Chunilal Mehta*: You consider then that it is very advisable, in fact essential, that in restricted areas you should have these people, officials as well as non-officials, living in the villages?—Yes.

49,468. Would you welcome the creation of any such organisation?—Certainly, but I would take advantage of the organisations which are already in existence.

49,469. Would the Co-operative Institute, for instance, or the Servants of India Society, be able to find the men if they were entrusted with the work?—Yes. I have seriously discussed this question with my colleagues of the Servants of India Society, and one of the officers of the Institute is very keen on carrying on this kind of work. We have already created a certain amount of confidence among the people, and if Government were to extend their financial help, and not mere sympathy, we should be able to do very good work.

49,470. For instance, Mr. Thakkar, of the Bhil Seva Mandal, has done admirable work in that direction?—Yes.

49,471. Not purely agricultural work, but work of a wider character?—Yes, educational, economic, temperance, boy scout work; in fact, he had applied to me for materials and literature connected with the National Baby and Health Week.

49,472. It would not be possible to find the personnel required, although it might take some little time?—No; it would take some time, but we can begin with those who are already in the field.

49,473. In fact, you would like to have a Servants of Rural India Society?—I would like to have a Servants of Rural India Society as an adjunct to the Servants of India Society. I would not divide them into two. We have already sufficient divisions into races and communities; and I would not divide them further into further economic divisions.

49,474. My point was to emphasize the fact that the men should live in the rural areas, not to imply that such a society would be better than the Servants of India Society?—Some of our men are living in villages.

49,475. How many years' experience have you had of work in the villages and in the Servants of India Society?—There was no Servants of India Society when I joined Mr. Gokhale; I was working with him a year before the Servants of India Society was started. My bent of mind was the result of the education I received during earlier years and under him. You may say that from the year 1895 onwards, that is, for a period of 32 years, I have been doing work of this nature.

49,476. You have visited rural areas very often, travelling up and down, and you have exceptional opportunities, as Vice-President or President of the Co-operative Institute, of seeing what is required in the direction of general rural uplift?—Yes; there are only two districts in the Presidency, one in the north of Sind, which I have not visited. Otherwise I have visited every other district in the Presidency.

49,477. It is your considered opinion that the taluka development association requires to be extended?—Yes, and made narrower in point of area and wider in activity.

49,478. *The Raja of Parlakimedi*: Will you tell us what your co-operative societies are doing in the rural areas for the uplift of the general conditions of living in those areas?—First and foremost they try to satisfy their urgent economic needs. They have two kinds of needs, viz., current needs and needs which can only be satisfied by long term loans. At present the majority of the co-operative societies doing work in the talukas have satisfied the current needs by short term loans, though in some cases the loans extend over two, three, four or five years. The second work they do is the work of education. I think every co-operative society is a very active centre for the spread of education; it is also indirectly a centre for the spread of ideas of moral elevation. No co-operator will ever induce apy other man to go in for drink. The societies, in short, supply an incentive for social reform, for temperance reform, for better ideas of living. Though a co-operative society has primarily to concentrate the greater part of its activities on the economic

improvement of its members, because they have primarily come into existence for that purpose, it has also to devote attention to the moral wellbeing of the population. If a co-operative society were to arrange lectures for temperance without satisfying the economic needs of its members, it would certainly be described as a body not doing its own work; but if it were to satisfy the economic needs of its members while neglecting the other needs, even then it would be considered a defective organisation.

49,479. Have you been in close touch with the work done in the rural areas?—Yes; I have been in very close touch.

49,480. What improvement do you find among the people?—The first improvement is the moral awakening. They were blind and sunk in despair before; they thought it was their lot to be like that. The contentment that was observable among them was more or less the contentment of resignation. They now see that by means of co-operation there are channels open to them for relief. Even the most illiterate and backward man who is a member of a co-operative society feels that. I have asked hundreds of people whether the co-operative movement has done them any harm, and I have not come across a single man, except it be a recalcitrant member who wanted to evade payment and suffered punishment for it (and even in his case he knows he was at fault), who has complained to me that the movement did him any harm. Every one recognises that here is a movement placed before him which, if properly worked, will satisfy his current needs. Co-operation has substituted the hope of a better future in the minds of people who were resigned to despair and destiny.

49,481. What sort of effect has it had upon the minds of the people of the depressed classes?—The result of co-operative work among the depressed classes has not been uniformly good. I have had considerable experience of that.

49,482. What is the reason?—The reason is that they need, for a long time yet, a great deal of personal touch and constant supervision. The higher moral side of life was denied to them for a long time, and therefore, in order to be able to come within the influence of co-operative principles, they must be given certain facilities and a longer time. Sometimes societies were formed for them hastily; they were then left to their fate, with only occasional supervision. That is a mistake. If I were to start a co-operative society for these classes, I would certainly make a better arrangement. I noticed some very good typical co-operative societies for depressed class Christians in Sialkot and Amritsar in the Punjab; I also saw some societies for women of the depressed class Christians there. On account of the supervision that is provided, and the constant advice they get, they are doing good work.

49,483. May I know what personal interest you take to man the rural co-operative societies with people who will take greater interest in the depressed classes? Have you interested yourself personally in that way?—In our organisation we do not make a distinction between people of the depressed classes and other people.

49,484. But should you not have men who would take interest in them?—I will illustrate what I mean. We have got a society near Poona at Hadapsar, where we have a sprinkling of the depressed classes. The chairman of that society and the young men who are office-bearers of that society are very much interested in the elevation of the depressed classes.

49,485. So there is a tendency now to have, in co-operative societies, people who will take interest in the depressed classes?—Yes. Their interests will not be neglected. Where it is felt that their interests will be neglected, then the policy of starting separate societies is favoured; otherwise I would like them to be grouped along with members of other communities in the village.

49,486. What degree of attention do these depressed classes receive from the National Baby and Health Week movement? They form the poorest classes in rural areas?—Therefore we concentrate on them. For instance, in the City of Bombay last year these exhibitions were held in three or four centres where the depressed classes reside.

49,487. What is the actual work done, apart from holding exhibitions?—The actual work is done by other organisations. The committee to which I referred is only a propagandist body; it does not do the work done by organisations like the Bombay Infant Welfare Society and the Red Cross Society. The work is divided among different organisations. They work in a large number of centres meant only for these people. The needs of the depressed classes are not neglected.

49,488. Is an actual record maintained of the work done for them?—It is done systematically.

49,489. What help do you give them in the way of milk supply and attention to their children?—In some places milk is given to them; in extreme cases it is given free, and in the majority of cases at very cheap rates and half rates. But that depends upon the recommendation of the lady doctor.

49,490. What is the number of daily attendances at the most popular institutions of that sort?—In the Infant welfare centres?

49,490A. Yes?—It varies.

49,491. I would like to know what is the actual attendances of members of the depressed classes at the most popular centre?—I cannot give the figures offhand just now. I shall probably be able to send it to you if you give me some time.

49,492. Roughly, how many?—These institutions are located in the midst of the poorest classes, and it is they who take advantage of them.

49,493. Do you see to that?—Yes. It is the poorer people, and not the lower middle classes, who find these useful. The aim is to give them medical attendance, or the help of a lady doctor, or the help of a nurse; also a few stock mixtures and milk, mostly free. It is the poorer classes who reap the greatest benefit.

49,494. Do the municipalities in this Presidency take sufficient care to provide education for these classes?—I would not dare to say whether the care taken is sufficient or insufficient, but I will say this, that the pressure of public opinion is making them look to this problem, and they are making provision for it. In this Presidency we have adopted a more liberal policy; we do not distinguish between the children of the depressed classes and the children of the higher classes or caste people.

49,495. Do you not give concessions for them?—They have concessions like scholarships. So far as admissions in other schools is concerned, I think the door is open to them; so far as provision of separate schools for them is concerned, the advanced opinion here is not in favour of it, although personally I am against it. My friend Mr. Kamat will tell you about it. In the Poona Seva Sadan we have about a dozen girls or women of this class reading and living along with others.

49,496. Is there sufficient inducement held out for them in the shape of scholarships and the like?—If there is a boy intelligent enough and keen enough to prosecute his studies, I think he has got facilities. In Poona, Government are maintaining a hostel for the depressed classes, and there are fifty of them in residence. I think Dr. Paranjpye must be given the credit for that. I want to see this facility extended to other parts of the Presidency. If a boy or a girl wants education, I think he or she should not be denied it simply because of their poverty. There are no separate movements to carry on that class of work except the Depressed Classes movement for all India.

49,497. Let us go back to your suggestion to encourage wrestling among the rural classes. What is your actual suggestion? Would you not encourage the old Indian method of physical training? After all, wrestling is not going to do much good?—But the rural people like it; at least in the villages of the Deccan you have an institute which provides facilities for physical culture. They have wrestling, *malkhamb* and several other forms of exercise.

49,498. Would you not lay more stress on *malkhamb* than on wrestling?—No. When tournaments are arranged, a large number of wrestlers come in; wrestling is more popular among them.

49,499. It is not a thing to be encouraged?—Where is the harm?

49,500. It does not give them a livelihood?—I have not advocated it as a livelihood, but only as one of the needs of the body.

49,501. But, for the development of the body, there are several other exercises?—I think they should certainly take to them. I am discussing the principle of community work. The people who would come together would think of promoting the welfare, not of individuals or of families, but of the community as a whole. So, if these regular sports and tournaments are increased, I think that kind of community spirit will develop.

49,502. From your experience, you probably know that the Indian method of physical training does not lead ultimately to wrestling. It has enough scope for the development of the body, but it does not lead to wrestling. So it is no use saying " Encourage wrestling "?—I am not particularly fond of wrestling as against any other game. What I mean is that some kind of definite community provision should be made for promoting physical culture.

49,503. *Sir James MacKenna*: With reference to this adult education scheme of Sir Vithaldas Thackersy, you have told us first that the scheme on its merits was not a success, secondly that before his death he reduced his contribution by half, and thirdly that when he died his trustees were not able to continue the contribution at all on account of his other benefactions. Nobody came forward to fill the gap with finance?—No.

49,504. Do you not think that the failure of this scheme, which had in it everything that seemed to point to success, was due to the fact that there was no great enthusiasm for adult education either amongst the people or amongst the public-spirited benefactors?—I would not necessarily draw that conclusion.

49,505. You think there is hope for it?—There is hope. Every day that we are talking of these things, more hope and enthusiasm are being created. There is another movement which is gradually spreading in our part of the country. It is called the library movement. It has not yet extended on a large scale to villages, but there are a number of big towns and cities now where there is a regular network of libraries. As a matter of fact, they are holding conferences; they are called library conferences, and it is just time for the Minister of Education to take note of it and give some grants to these libraries. A legitimate development of this movement will be the spread of libraries in villages, as they are having in Baroda State, and certainly some agency might be created on an organised scale here.

49,506. That will continue the literacy of the boy when he has left school?—Yes.

49,507. You do not despair of a scheme of adult education as being useless?—I do not despair of it. It must be made sufficiently attractive and suitable to the conditions of the life of the people.

49,508. On page 223, on the question of Administration, you consider that the Provincial Departments of Agriculture should of course develop so far

as they can, should do a large amount of scientific work themselves, but that there are problems which the Central Government should, at the beginning or possibly permanently, finance?—Yes.

49,509. Would you, at the present juncture, include dairying?—Yes, because the Central Government were already financing that kind of work at Bangalore. They all of a sudden came to the conclusion that they should drop it, which would certainly be detrimental to this Province.

49,510. You think it should be kept as a central subject until the time when the Provinces can finance it themselves?—Yes.

49,511. At present you think it should be financed by the Government of India?—Yes, because the Provinces have limited resources.

49,512. And more important matters to look after?—Yes. The Provinces should be left to pursue the work which they have already started and which they have on hand.

49,513. Central instruction in dairying will eventually provide the Provinces with a staff of young men who can develop the provincial side?—Yes.

49,514. Do you get any railway concessions in the co-operative movement?—We do not get any concessions at all.

49,515. Not even for the general meetings of your Central Banks?—No. The other day, while I happened to be in Delhi, I met the Director of Traffic. I had some discussion with him in some other connection with regard to railway concessions. I then broached this subject. Here we hold a large number of conferences, to which large numbers of agriculturists come. Why should not the railways give some concession as they give during Christmas, or as they give in the way of race specials? They make all kinds of conveniences for passengers going to the races. There are first class specials, second class specials and third class specials.

49,516. *Professor Gangulee*: They do not give any concessions for the races?—They do not give concessions, but they make special arrangements, which does mean money. During Christmas they give concessions. They gave concessions for the big agricultural show in Poona last year. My point is that it is not a novel principle which I am enunciating. It is a principle which has to be occasionally put into practice. Why should they not take it as a definite policy?

49,517. *Sir James MacKenna*: For what particular meetings would you ask for such concessions?—For conferences.

49,518. What conferences?—Agricultural and co-operative conferences.

49,519. Of what sizes? Provincial conferences?—I would make it available for all conferences, because the agriculturists will be more benefited by the district and taluka conferences than by the provincial conference. In the provincial conferences, in any case in our Province, we get representatives of these rural and primary societies more than the actual cultivating classes, but I would certainly have this benefit extended to the cultivating classes, because it is their work which is going to ultimately benefit the railways.

49,520. In point of fact, in Burma, for our Provincial Co-operative Conference, the railway and steamer companies give a single-fare concession?—I would certainly like the other railways in India to be as liberal as the railways in Burma.

49,521. The Burma railways are company railways?—But the State should do it here.

Certainly, much more so.

49,522. *Mr. Calvert*: On the question of these economic enquiries and the desirability of utilising non-officials, do you anticipate any difficulty from

the non-officials not being acquainted with the revenue records and technical terms?—No We will select only such non-officials who have the necessary qualifications for it. There will not be any difficulty, because I myself had undertaken some kind of enquiry in the matter of revenue collections during the years 1917; but because the officials from the Commissioner down to the Collectors were my friends and they knew that any information that would be made available to me would not be abused, I was put in possession of all such records and information as were not strictly confidential. So, I think if non-officials of the right type, with the necessary training and enthusiasm for the work, came forward they would certainly be given the same facilities. It all depends on the way in which the department looks at them.

49,523. Quite a number of non-official witnesses before us, in discussing the question of debt, have talked about the burden of the land revenue, but they have not mentioned the burden of the rent which is four times as high. Do you not think that a confusion between the two points might sometimes occur?—It is quite likely, but the training that we give them would certainly enable them to distinguish between the two. I have suggested the analytical and synthetic processes; if they clearly know which is rent and which is land revenue, they will certainly do it. In tracts of Bengal, while touring, I have come across people complaining against Government. I have asked them, if they had Rs.50,000 to invest in land, whether they would go in for *khalsa* or Government land, or for *zamindari* land; without a moment's hesitation they said they would go in for Government land. People clearly understand this.

49,524. On the question of agricultural education, you suggest that young men should be apprenticed to large and well-managed private estates. Do you think there are any such large and well-managed private estates now in Bombay to which they could be apprenticed?—I think round about Poona we have some, and in the Panch Mahals, where there is the Dalal family, there are some, and these are growing. People who are sufficiently rich and educated are really taking an intelligent interest in agricultural work, and they themselves would welcome such apprentices. It is quite possible. My idea in suggesting it is this: one of the criticisms levelled against the kind of education which the boys receive in the Agricultural College or against the work of the department is that it is not tested for results. When these young people come into contact with the actualities of life, the difficulties about labour, the cost of labour, the different kinds of soils, and so forth, I think they will get the practical training which a college or school will not give them. It is just like some institutions in England which teach colonisation.

49,525. It would be a pretty good thing if we could find the estate. The point is whether you have estates so well managed that they could do these students some real good?—If half a dozen articles or facilities of a particular kind which we would like to have were necessary, and private agency could provide only four of them, I would ask Government to provide the remaining two. At any rate, it would be a step in advance.

49,526. On the question of jewellery, you defend the expenditure and say that it is practically confined to the rich alone?—I think so.

49,527. Have you ever carried out a detailed investigation into a whole village?—In our part of the country we have. There is a report of an enquiry in one of the villages in the Konkan, and I believe our view is that it is the rich, those who have spare cash, that can really spend that money in luxury. It is not necessary for every man or woman to possess jewellery, except a few common articles. Even if one were not to possess all the ornaments which the rich people have, one would not be considered socially low.

49,528. Did you try to compare the value of the jewellery with the debt of the village?—I have not done so, personally.

49,529. An enquiry in the Punjab showed that the value of the jewellery of a village exceeded the value of the mortgage debt?—I see. That shows that the agriculturist there gets much more money.

49,530. They are prepared to borrow money to buy jewels. Do you find that here at all?—No. They borrow for marriage ceremonies, which certainly is a necessity, but I do not think a large number of people will borrow simply because the wife wants a particular ornament or a particular kind of *sari*.

49,531. Part of the expenditure on marriage is for jewellery?—Not necessarily. A good deal of it goes for feeding A large amount goes to railway travelling and also clothing. The jewellery may come to something like 5 to 10 per cent.

49,532. On the question of co-operative agricultural colonies, you say these could easily be organised?—Yes.

49,533. Is that based on any experience?—That is based on experience gained in other directions.

49,534. It is not based on any actual practical scheme?—It has relation to what I have suggested in the foregoing pages. In the year 1916-17 it was thought that Sind was a Province where co-operation would not grow, but the last 10 years' work has shown that it has grown tremendously. So, I have suggested that if such colonies were to be attempted in Sind itself, it should not be at all difficult.

49,535. You thought Sind was not a good field for co-operation and you sent us a man for training?—There was more affinity of language and manners of life between the Sindhis and the Punjab people.

49,536. On the question of non-official assistance, I have got here reports of the department written by two Registrars. One of them says that the number of these disinterested workers has decreased, but he gives in the report a list of those who have done well during the year. The other says that he has got a list too big to print. Who is correct, the man who has a list too big to print, or the man who has decided to include it in the report?—The truth lies somewhere between the two. The number of non-officials, in my opinion, will grow, provided they see that their help is welcome and is considered valuable, and provided they have to work with a class of people who are men with whom they would like to associate.

49,537. One witness, a day or two ago, pointed out that the non-official workers in Bombay are not drawn from the actual cultivating classes. Do you agree with that?—In Bombay they may not be from actual cultivating classes, but they are people who are in close touch with the life of the cultivators and are in sympathy with them. I am not a born agriculturist, but all my sympathies are with the agriculturist.

49,538. *Mr. Kamat*: With regard to the question of non-officials being shown the revenue records for the purpose of economic inquiries, do you not think that there is danger in keeping the revenue records a sealed book from the non-officials?—There is.

49,539. The more, therefore, the opportunity given to them to analyse and study for themselves the assessment figures and to see whether the assessments are reasonable or otherwise, the better?—It is better for the cultivators and for the Government also. I forgot to answer one point in one of the last questions. It is this: In the matter of collection of information and statistics with regard to crop returns, I was inclined to suggest, what I have already suggested before the Economic Enquiry

Committee, that the village official, who is certainly not very careful, does not know the consequences of the information he is supplying sitting at home and without going to the field. He should be made to consult the school-master in the village if there is a school, and if there be no school, he should consult the chairman or secretary of the village panchayat and also the chairman or secretary of the co-operative society. These people, if they work in conjunction with him, will certainly not sit in his room and write out the crop reports, finding out the average of a few years before them.

49,540. When your institute conducted certain economic surveys and inquiries in the Konkan, was any objection raised by the revenue officials? —No objection was taken. As a matter of fact we got very great assistance from them. I wrote to all the Collectors and to Dr. Mann. Dr. Mann and his departmental officials helped us a good deal. In fact, Dr. Mann sent one of his Professors, Professor Kanitkar who was trained under him in methods of economic inquiry, with me. We started the inquiry, and wherever we went, we got the necessary assistance.

49,541. With reference to your suggestion that a special grant should be made to an institute like yours for these inquiries, did you apply to the Bombay Government for any assistance on behalf of your Institute? We have not yet applied because the Bombay Government seem to be under the impression that we are getting a lot already, but I want to make out a strong case, and with the emphasis that is being placed in the inquiry conducted by this Commission, I think I may be able to make a strong case, saying that this is one of the directions in which Government have got to spend their money; if they give a part of that money to that Institute, they would have an additional grant or an additional amount contributed by the Institute to some extent and a good deal of expenditure will be saved. When we go out, we do not have to live in a dak bungalow and pay rent; we do not have to take our cooks with us, we dine with somebody and thus a good deal of expenditure is saved. If Government appoint an officer, that man becomes much more expensive than the man appointed by a non-official body like the Institute. The Institute's man will work with greater economy and will probably be as efficient as the man appointed by Government.

49,542. With reference to your suggestion to have agricultural men appointed as apprentices to certain farms and estates, in addition to private farms in the Bombay Presidency, are there any Chiefs of Indian States who can receive apprentices?—Yes, there are, and I should think they would be only too pleased to do so.

49,543. So, there is much scope for the apprentices?—Very great scope. I may add that some of the Indian States would even welcome the deputation of two or three trained men to bring under cultivation some of the vast areas in their States and to give special facilities as well.

49,544. With reference to this question of jewellery and marriage expenses, it is not a fact that, at least in the case of Hindus, certain ornaments are as compulsory for married women, as, for instance, the ring on the finger of English married women?—Except a few which are demanded by custom, the rest of them are not, for instance, our "*Mangal-Sutra*" which is compulsory.

49,545. If, therefore, you strike an average of one tola of gold (about Rs.20) per head of population throughout India, the amount of gold required, although collectively large, is individually not much?—It is not much.

49,546. Speaking about these adult schools, I would like to ask whether you have considered one aspect of that question, which perhaps explains

the difficulty. The point was whether it was the lack of enthusiasm or the lack of finance which was the root cause of the failure of these night schools. I have a little experience of these night schools. We conducted schools for Chamars in Poona City for some time, but they failed, not because the programme was unattractive, but because of the economic gain to the adults which they expected, that is to say, the Chamars assessed the gains by considering how much it be to their advantage to attend these schools and they did not find them attractive. On the other hand, at Kirkee, we have nine night schools which have proved to be a great success?—I am going to visit them on the 31st.

49,547. I know, because I have been associated with them for the last thirteen years. I know they have proved attractive for the simple reason that the adults attending them feel that as soon as they begin to read and write, their wages will be increased and they will get promotion in the Arsenal Factory where the men are employed?—That is true. In Bombay also the same is the case because there is the direct incentive of an increase in their wages, there are better chances of service. Here in Bombay the night schools are attended by adults of other classes also. In towns there is a great economic value and therefore there is a greater incentive than merely a demand for culture, though I would certainly not neglect the cultural side.

49,548. Religious songs such as *bhajans* have of course their value, but the adults never count the gains in terms of religious songs; they count the gains from these adult schools in terms of increases in their wages?—Increase in wages is a direct incentive.

49,549. You refer to the Deccan Agriculturist's Relief Act and propaganda. On the other hand we have been told that that Act has demoralised the sense of honour, both of moneylenders and of agriculturists. If that is true, what is the good of propaganda in favour of the Act?—I think no legislation, like any institution, will be perfect. If the tenants, as well as the agriculturists or the moneylenders, knew their definite limits within which they really could take advantage, especially the tenants, I think the process of demoralisation could be minimised to a considerable extent. But it is the want of education and of other facilities that drives these people to desperation and demoralisation.

49,550. If the Act is demoralising, what is the good of teaching its provisions to these people?—I do not say that it is demoralising to that extent. It has given them great relief, though it may have caused a considerable amount of inconvenience to the moneylenders themselves, but here we have to watch over the interests of those that need relief, and if that relief if forthcoming, at least partially, it will do a lot of good. I know that the Act has undergone amendment several times. That shows that special efforts were made to make it as perfect as possible. There is a report (*Arthur-Bodas Report*) before Government, not yet disposed of. I think some measure will be brought before the Legislative Council.

49,551. Coming to the question of the Punjab and what you saw, regarding the working of the officials and non-officials there, in addition to your impression that the movement is more officialised there than in other Provinces, did you also notice a tendency in the Punjab to differentiate between agricultural and non-agricultural people?—Yes. I mean it is not due to co-operation. It did not exist before the co-operative work came into prominence, on account of a certain piece of legislation. For instance, there is the Alienation of Land Act which created such a great uproar in 1907 and long before that there were certain Acts which really had tended to create a kind of cleavage between the agricultural population and the urban population.

49,552. *Professor Gangulee*: Do you say that that was the motive of the Act?—I cannot say that there could be such a bad motive behind any piece of legislation.

49,553. *Mr. Kamat*: Probably the whole thing is done with the best of motives, but do you consider that the actual effect of that Act is healthy? —Certainly not. What I think is this: though the work that was being done in the Punjab was of a very good character and in certain respects really good, it has not tried to bridge over the gulf between the non-agricultural interests and the agricultural interests. If it has done anything, it has tended to widen the gulf. I am glad that I had a talk with the Registrar of Co-operative Societies there and he agrees with me that that tendency if there is one has got to be improved now. Naturally, he would not agree that it was a considered policy. I do not say also that it was a considered policy, but that has been the effect. I would certainly say that co-operation does not promote class war, does not create difference, does not divide people; it brings them together, it is a synthetic movement, and I should like therefore to see the agricultural interests as well as the non-agricultural interests of rural as well as urban parts welded together.

49,554. You would not, therefore, like much emphasis to be laid on questions such as this: "are you looking after rural interests or are you looking after urban interests"?—It is unco-operative.

49,555. Society should be considered as a whole?—Of course, the community should be considered as a whole.

49,556. Coming to your work in rural reconstruction, say, in Baramati and in the *Bhil Seva Mandal*, do you think that, assuming rural reconstruction work is undertaken on a very large scale for the whole country, we would get enough of non-officials of the right type?—I would not undertake it, in the first instance, on a large scale. I would undertake it on a very small scale to start with, and for that limited work we should get non-officials, but that does not mean that I would exclude officials. I do not want to be misunderstood. My only point is that there would be a joint committee on which officials and non-officials will work, so that people will not think that this is only an officialised business, nor will the non-officials think that the officials have got to do the work. It should be work done by officials and non-officials in a non-official spirit; the spirit should be non-official.

49,557. What type of non-official men would you welcome?—It depends upon the nature of the work. I would not insist on having M.A.'s or B.A.'s but I want men of the right stamp, with a desire to push on and do a good bit of work.

49,558. *Professor Gangulee*: Not only of the right stamp but of the right type of education also?—Yes.

49,559. *Mr. Kamat*: What I mean is you want a man like Mr. A. V. Thakkar of your society who lives a very simple life, a sort of a missionary, who sleeps with villagers, eats with them and lives with them?—I want men like that. Mr. Thakkar was a Superintendent of Roads in the Bombay Municipality, getting about Rs. 375 or Rs. 400. If he had continued in that appointment he would have been drawing a salary of Rs. 700 at least a month. That man gave up his job because he felt that his work lay in the direction of what he is doing now. He does not cost much.

49,560. Is it possible to get men like that?—It is possible to get men like that. The idea is now in the air. There are forces there already but they have got to be brought together.

49,561. When you say the idea is in the air, that perhaps means that it has become purely a fashion or a vogue with some people, and they

use it as a slogan when they say, "We want rural reconstruction, I am against these politicians."—That is always the case at the beginning of a large movement.

49,562. A mere slogan does not help you. You want actual workers in the field?—The workers will come, because there are some men who are keen on social work, keener than they were about ten years ago. People are fast realising the importance of social work.

49,563. *Professor Gangulee*: Do you mean social work in the rural or urban areas? Are they to do it in the rural areas?—Yes, if you give them facilities; there are young men of the required type who live in the villages.

49,564. *Mr. Kamat*: So, for the Bombay Presidency at least, you hope that that type of simple man will be available?—Yes, the membership of the Servants of India Society is composed of simple people.

49,565. They, I am sure, are not people who merely adopt this slogan?—No.

49,566. *Dewan Bahadur Malji*: Long before the Institute was born you had tried to run training classes on behalf of the Servants of India?—Yes, we ran at the Servants of India Society's Home in Bombay training classes for secretaries of co-operative societies, as well as a co-operative library and a co-operative magazine.

49,567. Similarly, while not creating a separate body, if you could prepare the ground in the rural areas, do you think it would take long before this work would be practically undertaken?—No, a good beginning could be made in some small centres. For instance, the Servants of India Society has its branches now in different parts of the country, and the rural work is being done; there is no division at present, but if a division was made, members of the Servants of India Society could be allocated to this particular work.

49,568. Of course, economic considerations would materially differ in the rural and urban areas?—Yes.

49,569. But you think there will be an encouraging response?—Yes, people will be willing to come forward and contribute. They will not contribute for any schemes which originate in the towns, but if they see the results in the villages themselves they will certainly participate in the expenditure.

49,570. You have supplied us with a list of home industries?—Yes.

49,571. That list could be expanded with reference to local conditions?—Yes.

49,572. Can the agriculturist, without the backing of a subsidiary industry, sufficiently maintain himself in these days?—I do not think so.

49,573. You seem to think that dairying is an important home industry, so that buffalo keeping is also a home industry?—Yes, it certainly could be a very paying one. In some parts of Gujarat and in the Karnatak, I think, poor women to a large extent maintain themselves on dairying by keeping one buffalo; in fact, they maintain themselves very well.

49,574. Cow-keeping in these days is considerably reduced?—Except in the Madras Presidency, where they do not use buffalo milk. In our Presidency, where the richness of the milk is more looked to, I think buffalo milk and that form of dairying will be more popular and more attractive.

49,575. Buffalo milk is more in demand in urban areas?—In rural areas they value the buffalo milk just as much.

49,576. In rural parts they generally sell the milk, do they not?—Yes, after keeping a certain portion for their own domestic use.

49,577. If we could persuade some of our co-operative societies to advance money without any security for the purchase of cows, do you think that would encourage animal husbandry?—Yes.

49,578. If money is advanced and the money so advanced is spent in the purchase of cattle, there is already a salutary charge on the cattle? —Yes.

49,579. In Manitoba there exists a society which gets loans from the bank and then lends it for the purchase of cattle?—Yes, it might be tried here.

49,580. It would be very encouraging?—It would be encouraging; it would stimulate breeding.

49,581. In your note you have given the number of students in agricultural colleges and schools; do not you think the response is very small?— I would not call it a small response; I would simply say that it is so because there are not many facilities; people have not at present that capacity for initiative; but if the initiative were to come from Government, people would certainly take advantage of it now; if Government or the educated people will not move in the matter, those who feel that need have not got sufficient initiative to develop it.

49,582. Would not you attribute this lack of interest to the absence of facilities, at the bottom, for agricultural education?—Yes, that is precisely what I mean.

49,583. You are more or less an All-India man: generally speaking, are the *khatedar* cultivators giving way before the menial workers, the *haris* and servants?—Yes.

49,584. Landholders are neglecting the cultivation themselves and leaving it to their menials?—Yes.

49,585. These *haris* and menials do not possess agricultural knowledge such as originally the *khatedar* cultivators possessed?—No.

49,586 Is it not because of that that the yield from the land has considerably decreased?—That is true; not only have they no information, but they have no interest either. The policy of better class and better educated agriculturists, to leave their work to their servants or tenants and go and live in some other place as absentee landlords, is very detrimental to the growth of agriculture and the economic advancement of the country; there is no doubt about it.

48,587. And that leads to lower production?—That is true.

49,588. Is not the present state of things in the rural areas due to the present-day trend of education, which more or less creates gentlemen farmers?—Yes, it is called *babu* education; I think it lays too much stress on the literary side and does not sufficiently emphasise in its curriculum the dignity or desirability of manual labour; that has been the drawback of our educational system, but I think the time is coming soon when that drawback will be removed.

49,589. In your note you refer to the Deccan Agriculturists Relief Act; the provisions with regard to insolvency proceedings under that Act do not extend to all the districts?—If they do not, I would advocate its extension, because otherwise you would have to enforce the Provincial Insolvency Act; it is much better to have the Deccan Agriculturists' Relief Act, which does not so much demoralise people.

49,590. Under the Provincial Act the immovable property, I mean the lands of the agriculturist, are liable to be sold in payment of his debt, whereas that is not so under the Deccan Act?—That is why I plead for its extension, because it is admitted that the agriculturist wants relief,

and if that relief were given, certainly he must be allowed to have his maintenance, he must be allowed to have his house, because there are the children and his wife. Taking all things into consideration, I think the extension of the provisions of the Deccan Agriculturists' Relief Act is much better.

49,591. So that you would advocate the extension?—Yes.

49,592. You have said somewhere in your note that the lands of the agriculturist should be made inalienable?—That is only in backward areas, because I know there are certain tracts where, owing to the ignorance of the people, or taking advantage of their helplessness, moneylenders are getting the land into their possession. In such cases I think the policy of preventing them from being ultimately deprived of their lands might be put into operation for a time. If, when better educated, they feel it is a slur on their culture, then Government might withdraw it. There are certain tracts in the Panchmahals and in Khandesh, for instance, where the careful and clever, I will not say wily, moneylender sees that his investment is safe; though there is an oral understanding that the land will be returned to him when the full payment is made, as a matter of fact, when once an agriculturist is in debt, he is perpetually in debt; so that the land really passes to the moneylender. I would prevent that kind of alienation even at that stage.

49,593. Only in backward areas?—Yes, only in backward areas, because I know the effect is to restrict his credit. If the agriculturist is sufficiently intelligent and understands the consequences, I would not make any such provision for him; this protection is for the man who does not understand the consequences.

49,594. You agree that this kind of legislation decreases the credit of the agriculturist?—Yes.

49,595. In some areas the rents are increasing considerably?—Yes.

49,596. Where rents are increasing by leaps and bounds, do not you think there should be some law to prevent rack-renting?—Yes, I think so, because this unhealthy competition has a tendency to increase rents.

49,597. Would you find it encouraging if implements were provided for agriculturists on the hire system or the hire-purchase system?—That depends on the value of the implements; if the implement be such as can be purchased with a small outlay, I would certainly see that the agriculturist got a loan from the society and purchased it, because the hire-purchase system is worked on a careful calculation whereby, I think, something like 9 or 10 per cent., or even higher, interest is charged. I know I recently had occasion to buy two typewriters; for cash I could get them for Rs.180, whereas under the hire-purchase system I should have had to pay something like Rs.210.

49,598. So that it is only in cases of difficulties of finance that you would go in for the hire-purchase system?—Yes; otherwise I would put the agriculturist in a position to purchase it outright.

49,599. Would you advocate the policy of Government appointing grading officers for pushing the sale of goods in the market?—Yes, certainly, because it is the decision of the officers themselves that would be valued and respected by people.

49,600. You would treat it as a part of co-operative education?—Yes.

49,601. How should the interest on loans obtained from the Provincial Banks by agriculturists be fixed?—At present we observe the tendency all over India for the co-operative societies to give loans to their members at a rate of interest which is really half the current rate of interest in

that locality; but that is the lowest rung of the ladder; when it proceeds to the highest financial agency, I think it should be somewhere about 5 or 6 per cent. less, because there are two or three intermediaries. There is the Provincial or the Apex Bank, there are District Central Banks, and there are the co-operative societies, and each would have a certain margin for expenses, and if the margin be something like 2 per cent. per transaction of Rs.100, I think it might be sufficient, so that that may be the determining factor.

49,602. This helps the retention of the land by the agriculturist, otherwise if the rates are increased the chances are that the sales of property will be accelerated in the payment of debts?—Certainly.

49,603. At one place in the Appendix to your note you refer to some advantages obtained by the villagers joining the membership of the Banwasi credit society. I find a reference made to deposits amounting to Rs.2627. May I know if these deposits were voluntary or compulsory?—Voluntary, because the system of compulsory deposit is not very well understood in some quarters and has not, therefore, been extended to them.

49,604. Have you made sure that that is the case?—That is my impression.

49,605. With regard to these railway concessions, do they not, as a matter of fact, make some concessions in point of railway fares in the case of race specials?—My point is that if the same concessions are extended to the agricultural classes whenever they are required to attend agricultural and co-operative conferences and exhibitions, that would add to the railways' income, and at the same time it would be an encouragement for greater numbers of people to travel over the railways in order to attend these functions. But the railways do not appear to see this point, and all I would say is, "Wait and see."

49,606. *Professor Gangulee*: What is your relation to the Department of Education in your propaganda work?—The Department of Education is willing to assist us. There is an officer called the Visual Instructor. Whenever the district or divisional branches of our Institute prepare a programme of their lectures they ask the Director of Public Instruction to lend the services of the Visual Instructor, and this he does very readily. In the Punjab, as you are probably aware, the Department of Education assists the co-operative movement a great deal in propaganda work; in fact, they utilise the co-operative movement more than the movement itself utilises the Education Department. The Director of Public Instruction here has had some discussions with me on the subject of adult education, and I have told him that I would give him my views directly I returned from the Punjab. The Provincial Co-operative Institute, as a matter of fact, is in touch with the Director of Public Instruction in matters of rural education and such like things.

(The witness withdrew.)

Major C. E. PECK, representing the Salvation Army Social Work, Bombay Presidency.

QUESTION 2.—AGRICULTURAL EDUCATION.—As our experience is only with the depressed classes, we can only speak in reference to them. In our Industrial Schools we do not find the boys keen on agriculture. They come from parents who have little or no interest in the land, and who prefer the boys to take up other careers.

We have no definite system of agricultural education as such. It is not sought after by the people we work among.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—We think if model farms could be set up in districts within reach of the cultivator class, say in Gujarat, Panch Mahals or Maratha Country, where demonstrations could be given, it would result in keener local interest and have a speedier effect than an occasional big concern like the Poona Agricultural Exhibition of last year. Our idea is to let the cultivator see what can be done in his own district.

QUESTION 5.—FINANCE.—We think that it would be a good thing for Government to make it possible for separate village communities to be financed for agricultural purposes, with necessary safeguards, under the management of the village panch, so that the cultivator can get capital independent of the exorbitant moneylender.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (1) We have only a knowledge of the smaller type of cultivator, and it appears to us that the main cause of his borrowing is that his earnings of one year are paid over to the moneylender, and he is again left without capital for the next year, and so he goes on with his inevitable borrowing to provide himself with the necessary capital. We might also suggest that this is specially aggravated by the exorbitant rate of interest payable, which, when all is paid, leaves the poorer cultivator high and dry.

(ii) The sources of credit are usually the Bania (moneylender), who, in instances we have known, charges from 50 to 150 per cent., against which the cultivator's entire crop is often mortgaged.

In some places we know of the co-operative system working with satisfactory results. Many cultivators would avail themselves of the co-operative system, but are unable to get out of the hands of the moneylender.

(iii) Reasons preventing repayment are poor monsoons, or where crops are spoiled by floods or pests.

(*b*) Measures to lighten the burden of debt are: the enforcement of the law prohibiting exorbitant interest charged by the moneylender; restriction of credit, mortgage and sale seems necessary to protect the cultivator against both himself and the extortioners.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—Whilst we admit that there are a considerable number of small holdings that appear failures, and do not make for agricultural efficiency, we do not feel competent to make suggestions upon this matter. We do not, however, see any advantage in 10 different families holding, say, 50 acres of land that do not maintain a single family, when, if the 50 acres was divided between four men, it would in most districts maintain four families. We are aware of the obstacles in the way of consolidation, but how to overcome them we cannot say. It would cut at the very root of the traditional holding of land. Some standard of cultivation might be legally insisted upon, and all incapable holders dealt with. It should also be insisted upon that minor disputes be settled out of Court.

QUESTION 8.—IRRIGATION.—(iii) Wells. We would draw attention to the terrible need of water in parts of the Deccan, Sirur and Shevgaon talukas. In fact, in many parts the low caste people are unable to get water either for drinking or agricultural purposes, and we can only suggest that, if possible, suitable wells may be sunk to meet the need.

Agricultural conditions in the Deccan, in the Nagar, Sirur, Shevgaon talukas (which we know) are specially bad. Crops are simply lost for want of water, the monsoon rarely giving sufficient. If wells could be sunk providing a certain amount of irrigation, it would be a great boon. The holders could be charged for the use of wells for irrigation purposes, and Government could keep them in order.

QUESTION 11.—CROPS.—We would suggest that seed distribution might be under the management of local governing bodies and supplied from a centre, making it cheaper and more reliable to the cultivator.

QUESTION 12.—CULTIVATION.—Could not a central model farm, as suggested under Question 3, hire out improved implements at a small rate, and, if necessary, a man to show how to work them.

QUESTION 14.—IMPLEMENTS.—The district model farm could help to hasten the adoption of improved implements by its practical demonstrations.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—As far as we understand, the average small cultivator works about eight months out of 12 on his holding, and, during the slack season, does cartage work, or hires himself out to the big farmers for cleaning or wood-cutting, and some migrate to other places and do coolie day-work. Road repairing work is also done by the poorer classes.

(*b*) Subsidiary Industries.—Hand-loom weaving, spinning, on a co-operative basis for each village under control of the panch Government might make a capital loan at low rate of interest. It should be done on a big scale, that is, one village might work 6 to 10 looms. This would employ about 15 persons.

Poultry rearing should be a good thing, especially if a better type bird and egg could be produced for the market.

Fruit growing in suitable districts where there is ample water should be good.

Our suggestion is that whatever is done should be done under the central control of the village authority.

QUESTION 18.—AGRICULTURAL LABOUR.—In many parts of the Deccan labour is clearing out and going to the cities to take up common coolie work. These people, at least many of them, could be attracted to other parts if (1) they were sure of employment and their travelling expenses paid both ways, or at least one way. These would return to their own parts for the usual season; (2) the people who are definitely clearing out of their own parts because of starvation conditions, could be attracted to other parts where uncultivated land exists, if assured of reasonable results, water supply, offers of land, &c.

QUESTION 20.—MARKETING.—Co-operative marketing is necessary.

QUESTION 22.—CO-OPERATION.—It appears to us that if any improvement in agricultural conditions is to be achieved, it will only be accomplished by co-operation, either on the part of Government or local bodies. The initiative is not with the cultivator.

Co-operative societies for: (1) credit loans, (2) sale of produce, (3) wells, and protection of land against flood, and trespasses by animals, etc., (4) use of agricultural machinery, (5) re-distribution of fragmented holdings in plots of reasonable size.

These we place in what we consider the order of urgency, the most urgent being 1, 2, and 3.

QUESTION 24.—WELFARE OF RURAL POPULATION.—We have made inquiry into the general welfare of the poorer type of villager, and our conclusions are that they are far poorer than they ought to be. If they have land, they have not enough of it.

Often, whilst the better classes have water, the lower classes have none, and in the same village area. The moneylender exploits them in his grip, from which they cannot escape.

Major C. E. Peck.

Major C. E. PECK and Ensign PALMER, representing the Salvation Army Social Work in Bombay Presidency.

Oral Evidence.

49,607. *The Chairman*: You are here, Major Peck, representing the Salvation Army social work in the Bombay Presidency?—Yes.

49,608. And you are supported by Mr. Palmer?—Yes.

49,609. You have provided the Commission with a short note of the evidence that you wish to give. In the matter of Research you say that you are insufficiently acquainted with that subject and you have no suggestions to make. In the matter of agricultural education, would you tell us the scope and extent of your work amongst the depressed classes?—We are working in the Deccan amongst the Mahars, and in Gujarat chiefly amongst the Dheds.

49,610. Is it amongst the children or amongst the adults?—I have referred in the note to the children in the schools; of course they are the children of these two classes mentioned by me just now. We also work among their parents.

49,611. How many children have you in your schools?—Taking the four boarding schools we have approximately 200 children.

49,612. You give a note on your views with regard to demonstration and propaganda and you make certain suggestions. May I ask whether you are familiar with the existing conditions?—Not very familiar; I have only been engaged in our social work for the last twelve months.

49,613. Is your work mainly confined to urban areas or does it extend also to rural areas?—It is both; we work in the cities as well as in the villages. I omitted to say that we have a large number of village day schools apart from industrial schools; there are about 125 village day schools.

49,614. Inevitably I suppose you are drawn towards the large centres of population, and you work in the main in those centres?—No, our work is chiefly in the villages, in the rural areas.

49,615. On the second page of your note, amongst the reasons preventing repayment and your suggestions for improving the position, you suggest that the enforcement of the law prohibiting exorbitant interest charged by the money-lender might make a contribution, and you also say that the restriction of credit, mortgage and sale seems necessary to protect the cultivator against both himself and the extortioners. Have you studied, at all, the attempts made in other countries, and in other parts of India, to control the operations of the moneylender by Statute?—No, but I am aware that there are such laws.

49,616. In answer to our Question 18 on agricultural labour, you suggest that it might be possible to encourage emigration from districts where living is poor to districts where better prospects are offered; but do you know that there are often great difficulties, climatic and others, which make it extremely difficult to move the population?—Yes, I realise that.

49,617. For instance in two districts under the same Administration such as the Deccan and Sind, there is difficulty in effecting a transfer of the population?—Yes; we were told that many people come to Bombay from outside and we do not think that there is likely to be any difficulty in the people going to other parts, provided of course there was no language or other difficulties.

49,618. Have you formed the impression that the rural population are asking for, and looking for, better things?—Yes, I think so.

49,619. Do you think there has been any change in that respect during recent years?—Yes, I think so.

49,620. Do you think that improvements in communications and means of transport are likely to make a very important contribution towards the strengthening of public opinion in favour of rural betterment?—I think so.

49,621. Your organisation does nothing in the way of encouraging the use of improved implements or improved seeds, does it?—Not up to the present.

49,622. It is confined mainly to social work amongst the children?—Yes, also adults. We have a farm colony at a place called Muktipur in the Ahmedabad district; it is a farm colony pure and simple, and it has not been carried on on up-to-date principles; they do not use up-to-date machinery.

49,623. Is your work non-sectarian?—Yes, our social work is non-sectarian.

49,624. Are you supported by funds sent from overseas?—Our social work is mainly dependent upon overseas funds.

49,625. You do not collect very much in this country?—A very small proportion is obtained in this country; we depend very largely upon our international funds. We get a certain amount of support from Government in respect of certain classes of work which we carry out for them.

49,626. *Professor Gangulee*: What sort of work?—We have a Willingdon Boys Home for juvenile prisoners and reformatory boys; then we have rescue homes for women, all of which are supported by Government to a certain extent. But our farm colony work and our village work are not supported; these are purely dependent upon our own funds.

49,627. *The Chairman*: How many whole-time workers have you in the rural districts?—In the Bombay Presidency we have approximately 600.

49,628. On a voluntary basis or on a paid basis?—They receive a certain amount of pay; they receive subsistence allowances.

49,629. Of that number, how many would be working in the rural area?—The greater portion.

49,630. Do they have a preparatory course to equip them for their work?—Yes, we have two training colleges.

49,631. You have no agricultural side to these training colleges?—No. There is no desire among the class of people that we deal with, for such training, because they have no ambition; there is nothing to encourage them. Our people either have no land or have very little land, and the parents seem to desire their children to take up other occupations.

49,632. So that a great part of the rural population with which you deal is, in fact, from the depressed classes?—Absolutely; if they have land they are very small farmers.

49,633. *Sir James MacKenna*: What estimate have you formed of the intelligence of the depressed classes?—Our impression is that, given a fair chance, a very large number of them will do well. We have found, in some of our schools, that quite a number of pupils pass the vernacular final examination which is pretty stiff for that class of children.

49,634. It was suggested by another worker in the Madras Presidency that the depressed classes have so many years of depression behind them that the formation of self-reliance and self-pride in them would be rather a slow process; is that your experience too?—Yes.

49,635. So, apart from the mechanism of education you have the psychology of these people which is a very strong impediment in their progress?—That is quite true.

Major C. E. Peck and Ensign Palmer.

49,636. *Mr. Calvert*: Have you any co-operative societies among these depressed classes?—No; we have not.

49,637. Are there, in the villages in which you are working, any co-operative societies exclusively for depressed classes?—I could not quote any particular instance, though I have heard that some of our people avail themselves of local societies. We experimented with one some years ago, but it did not prove a success, chiefly because we did not take people to the law courts for non-fulfilment of their obligations, and of course that is a weak point under certain conditions.

49,638. Do you find that your attempts to uplift the depressed classes meet with sympathy from their neighbours?—In some directions; not in every direction. I think I ought to say that it is becoming more so.

49,639. That is to say, you find that people living in the same neighbourhood are prepared to see these depressed classes elevated up to an equal plane with themselves?—It would be difficult to say whether they desire them to be raised up to an equal plane but they certainly do wish, at present, to see them helped up. I do not think it is quite to the extent you suggested.

49,640. From the point of view of character, do you find that the members of the depressed classes are distinctly below the level of the others?—I am sorry to say it is so.

49,641. *Mr. Kamat*: In the village, in spite of your good work, do you still find an attitude of indifference to, or of isolation from the Salvation Army?—Do you mean, from the social reclamation point of view or from a religious point of view?

49,642. Is there a suspicion, from the people's point of view, that your primary work is religious?—We agree there is undoubtedly a suspicion.

49,643. What efforts are you making to remove that unfounded suspicion from the villagers and to impress on them that yours is a humanitarian work also?—It is a very difficult question to answer. Of course, in our social work we do not press our religion upon the people; at the same time we do not make any secret of our evangelical propaganda. May I suggest, however, that the class of people we deal with are more or less severely left alone by the others, and it is a case of whoever comes in can get them.

49,644. There are other workers amongst the high class Hindus who have realised the bad position of the depressed classes and they are also trying to uplift them. Do you come into contact with such social reformers, and if so, do you co-operate with them?—Yes. In Bombay we have a good deal of co-operation. In fact, I am a member of quite a number of committees which are not Salvation Army organisations.

49,645. You think, therefore, that the co-operation of the Salvation Army workers with other workers is a desirable thing for rural uplift?—Yes, I should say so. Of course the only point is this, that we do not like to be regarded with suspicion; there must be confidence.

49,646. If you therefore bring about greater co-operation between your workers and the educated workers in towns, then this suspicion may be removed and the work of the two agencies is likely to be far more effective than at present?—Yes.

49,647. *Dewan Bahadur Malji*: On page 276 of your note you refer to handlooms as a subsidiary industry. May I know if you would propose that such handlooms should be owned by village panchayats and that people who have spare time should work on these looms on payment of wages? Is that your idea?—I should say that since I made this suggestion, I have discussed this with an officer of the Salvation Army who has had considerable experience, and he does not agree that the village panchayats are the best bodies to control it.

49,648. Who else can possibly do it in the villages?—He suggests that families, or groups of families, could work more happily together in an enterprise of this kind. There is a certain amount of suspicion on the part of some of the members of the village that the Panch are likely to work things round to their own way. This officer has had 40 years experience in this country and knows the people very well indeed. He told us that it would be better for families, or groups of families, to form a society or company to own them.

49,649. What you mean is this, that there ought to be some people who can, between them, own such handlooms and give an opportunity to other people to come and work on payment of wages?—Yes; a family can have a handloom, and then it would be a family affair; or a number of families can form a society and can have these looms. Of course it requires to be financed on a capital basis.

49,650. *Professor Gangulee*: Your work, I understand, is chiefly confined to the depressed classes?—It is, but not necessarily. That is to say, our work is open for all classes; I would like to make that quite clear.

49,651. Do you find that the drink evil is increasing or decreasing?—We are of opinion that it is increasing.

49,652. Are you of opinion that the sale of liquor, opium and cocaine is definitely increasing in the rural areas?—We think so.

49,653. Do you carry on any dry propaganda?—It is a principle of the Salvation Army that no man should drink, and no one can be attached to the Salvation Army in any capacity who takes intoxicating liquors.

49,654. Is there any other social service agency assisting you in your dry propaganda?—No.

49,655. What is the attitude of the Excise officials towards your dry propaganda?—We have had no experience. I have not perhaps made myself clear. We have no definite propaganda against the drink traffic as such. When I referred to a dry propaganda, I meant that, in conducting our work, in a general way we are definitely against drink, and it is embodied in our ordinary propaganda that no one can become a Salvationist or a member of the Salvation Army unless he has given up drink.

49,656. How long has your farm colony been in existence?—Approximately for about 35 years.

49,657. How is it that you have not introduced any improved methods of agriculture? Is it due to finance?—I think finance has been the real difficulty. We have not been able to put money into it. To start with, we acquired land and gave it to these people. We had a large number of poor families settled there and we had them established on the land, and we became their *Ma Bap;* we helped them along for a number of years, until now they are on their feet. We have not been able to introduce any improvements in agriculture; these people are now more or less running on in their own way We control the discipline and the general well being of the colony, but are unable to give them any further assistance.

49,658. Do you distribute better seeds?—No.

49,659. Are you in touch with the Agricultural Department of the Bombay Presidency?—No.

49,660. On page 276, you say: "Whatever is done should be done under the central control of the village authority." What have you in mind?—I was thinking about our own colony. For instance, although they do not do it there, what we had in mind was that they would get better results, a better class of seed and probably be able to buy it much cheaper, if this was done; it is certainly an idea that we have in mind

for our own colony. The question is the making of the necessary arrangements to give it effect. It certainly appeals to us.

49,661. You have 100 schools among the villages?—In the Bombay Presidency, about 125 village schools.

49,662. Who are the teachers?—Our own workers.

49,663. *Sir Chunilal Mehta*: Your work is more or less education and medical relief?—Yes. I am referring to our social work.

49,664. Your work is principally social?—It is about equal. Our social work and our evangelical work are about equal. Our social work is quite distinct from the evangelical.

49,665. Do you consider that the lack of co-operative societies amongst the depressed classes is largely due to the fact that they have no land which they can give as security?—No. We think that although there are other facilities round about, these people cannot get out of the clutches of the moneylenders. They cannot avail themselves of the conditions, because they must first of all clear themselves from the moneylenders.

49,666. Have they got land to give security?—Yes. I am referring to that class of small cultivator who owns 4 or 5 acres of land sometimes. In many cases, we have found that their crops have been mortgaged in advance to the moneylender.

49,667. Is cocaine at all used? Have you seen it used?—I have not seen it used, but we hear it is used. I would not specify cocaine, but mean drugs generally.

49,668. Do you think that the use of opium, for instance, is on the increase?—I could not specify opium as such. All that we understand is that it is done. There is a kind of vague reference to it. People know, and yet they do not know enough to say very much. I would rather emphasise that the taking of intoxicating liquor is more on the increase.

49,669. I thought you said that the use of opium was on the increase?—I do not remember specifying opium; I referred to drugs in general.

49,670. As a matter of fact, the consumption of opium in this Presidency, during the last six years, has gone down by about 30 per cent.—Is that so? I referred to what they call *ganja*. I am not referring to opium or cocaine; I do not understand sufficient about it. I refer to the common types of drugs.

49,671. Do you think that the use of country liquor is on the increase?—I should think so. That is by observation; we see plenty of it.

49,672. Do you think there is more illicit distillation?—That I could not say. I have heard of it existing in the Panch Mahals.

49,673. Our figures show that the consumption of drink is on the decrease in rural areas as well as in urban areas?—In the rural areas, but not in the cities.

49,674. Also in the cities. In Bombay city it has decreased very considerably, 30 per cent., in the last five years?—I am very pleased to hear that.

49,675. With regard to migration, in answer to the Chairman, I thought you said that if labour can go from the villages to cities like Bombay, it could be taken out to other villages?—Yes.

49,676. Have you had any instances of this?—We have had no instances, but in talking with the people they seemed to be desirous of going to places where they could get a living.

49,677. To cities?—If necessary, or to other places.

49,678. Have you any experience of hand-spinning?—Yes. Hand-spinning at present is not a paying proposition. Especially with the old *charkha*, no man can earn more than 2 annas a day, approximately, because he has to take out the thread first, twist it, get it on the spindle, and then again twist it up round a bobbin. We have another kind of spinning wheel, exactly of the English pattern, what we call the ring spinning wheel. They are able to do approximately twice as much on that. But anyhow, it is impossible to really consider a thing like hand-spinning.

49,679. How long have you had this improved spinning wheel?—It has been in existence in foreign countries for years and years. It is simply a question of transferring the English pattern to India. It is not an invention of the Salvation Army; it is something that has been done in other countries.

49,680. Have you seen these improved spinning wheels used in India in the places where you work?—To my knowledge, they are not advertised. But, in regard to these implements, the people here are conservative. I have come across gentlemen interested in this question, but they say that the people here like the old spinning wheel. As the people are conservative, they do not want to adopt the improved wheel. I understand that Mr. Gandhi says that it is not for the Indian people.

49,681. *Dr. Hyder*: What is the price of this ring spinning wheel?—It is Rs.18.

49,682. *Sir Chunilal Mehta*: The other one costs less than Rs.2?—Yes. Of course the *charkha* is a very simple arrangement, and you can use only one hand, but, in the case of the improved wheel, the power transmission is by the foot, and it leaves both hands free to do the spinning.

49,683. Do you consider that the cultivator can take to hand-loom weaving?—My experience in Gujarat is that a number of Dheds are quite well off by adopting this industry when they cannot work on the farms. They work at it approximately for five to six months in the year. Sometimes they fix up a contract with a merchant in the village; the merchant supplies the yarn, they simply have to return to the merchant a certain amount of cloth, and they get payment for it.

49,684. *Professor Gangulee*: Are they agriculturists?—They are not weavers by caste. They are called Dheds; they are a depressed class of people. They are both weavers and cultivators together.

49,685. *Sir Chunilal Mehta*: You consider that cultivators can, in their spare time, do hand-loom weaving of the rough sort of cloth?—Yes; it is a paying proposition.

49,686. That is your experience of those who have tried it?—In our own industrial schools we have taught children hand-loom weaving, and we have a special type of loom which is patented by the Salvation Army, the fly shuttle loom, and these looms can be made use of in place of the old types of hand-shuttle looms.

49,687. Do you find drink more prevalent among such hand-loom weavers? —I should not say they are worse than other people. I presume you are referring to the weaving caste.

49,688. I mean the weavers themselves?—I want to make a distinction between people doing it as a subsidiary industry and the caste of weavers. With the caste weavers, hand-loom weaving is a profession, but in the case of the other people, when they have no agriculture, they could take up weaving as a subsidiary industry. Take, for example, the Maratha Kunbi. Practically, for five months in the year, these people sit in the villages doing absolutely nothing.

49,689. *Professor Gangulee*: Which part of the country are you referring to?—I am referring to the Deccan Kunbis. I have been in Ahmednagar

district for 18 months, and I have had an opportunity to see the people. I have lived in the villages, and I have been actually in touch with the poorest village people. I have seen the poor farmers. It may happen that in some cases if they have a boy they send him to look after a few goats. They themselves will pick up a little wood in the jungle, go to Ahmednagar to sell it, and they will travel 10 miles in order to get 4 to 10 annas a week with which to buy a little sweet oil with which to prepare their food. That happens in many cases. These people could make 3 to 4 annas a day net by some subsidiary industry instead of sitting absolutely idle.

49,690. *Sir Chunilal Mehta*: You consider the encouragement of subsidiary industries most important?—I consider it most important.

49,691. Have you picked out any particular industries that might be suitable?—We were speaking about weaving. I should think weaving is a very good industry to assist the poorer classes. There is also something that they can save by using the cloth that they themselves have made.

49,692. Have you had any experience of the travelling Weaving Inspectors whom Government employ?—Yes, and I have also been able to co-operate with them in certain respects.

49,693. Do you think they are able to do good?—I think so. In the district that I have referred to I have seen that they have been able to help the weaver caste considerably. They have improved the hand-shuttle weaving by introducing among the weavers who are now weaving *saris* the use of the fly shuttle loom, which will produce more cloth in a shorter time.

49,694. What district are you referring to?—Ahmednagar.

49,695. Have you had any experience of Khandesh?—I have none.

49,696. Would you recommend any other industry besides weaving?—It is difficult to recommend any other industry. As far as weaving is concerned, it is easy to learn and it is something there is a demand for.

(The witness withdrew.)

Rao Saheb G. S. SHIRAHATTI, Managing Director, Hubli Co-operative Cotton Sale Society, Ltd.

Replies to the Questionnaire.

QUESTION 20.—MARKETING.—(*a* and *b*) No. The existing market facilities and the existing system of marketing and distribution are not satisfactory. So I wish to deal mainly with cotton marketing, and before making any suggestions on existing market facilities. I wish, in the first instance, to state in brief the present system and customs of the markets of Hubli and Gadag, which are the largest market places of the Bombay Karnatak, commanding about two-thirds of the cotton produce of the Kumpta Dharwar area.

General.—Cotton stands pre-eminent among farm crops in the Southern Maratha country in the ease and cheapness of its production, and is the chief money crop of the cultivator. It forms the chief rotation in our part for *juar* and wheat, the staple foods of the cultivator. In the Dharwar American (Sawgin) tract almost no rotation is followed in some places. Cotton after cotton is grown for many years.

In the Southern Maratha country two types of cottons are grown: Kumpta (G. *herbaceum*) and Dharwar American (a mixture of New Orleans G. *Mexicanum* and Upland-G. *Hirsutum*, the former predominating). Kumpta is grown mostly on heavy black soil. It has a fine staple ⅞ inch long, colour rather dull, with a ginning percentage from 24 to 27. The

quality of the cotton differs from place to place, depending upon the soil and climate. For example, cotton grown in the *Gadinad* (the portion bordering Mallad), most of Hubli, Bankapur, Dharwar, Haveri and Sampgaon talukas and on the bank of the Krishna river is always superior to that grown in *Yerinad* (black soil area). The prices offered in the local markets and in Bombay generally vary according to the centres from which it comes. Miraz, Bail-Hongal, Hubli, Gadag, Bagalkot and Bijapur stand in order of merit.

The Dharwar American (Sawgin) is confined mostly to the Eastern and Southern talukas of the Dharwar District and some isolated places of Bijapur. It is the survival of the seed introduced by Government about 60 years ago, when it was found that only in the Dharwar district did this variety become acclimatised. It is grown to a small extent in the *kharif* season on red soils of the *Gadinad*, where early rains are sure (red soils of Ranebennur and Haveri talukas) and in the *rabi* season on medium black soils of Ron, Gadag and Mundargi talukas. In the case of this variety also there is variation in the quality of cotton produced in different places. Kundgol, Hulkoti, Kurtakoti, and Gudgeri Dharwar American cotton fetches a higher price. The colour is quite white. Ginning percentage is from 28 to 30, staple § inch long, and admixture of Dharwar American and Kumpta is found even up to 20 per cent. in some places. This is done intentionally by gin-owners with the object of improving the colour of the Kumpta, the mixed seed being purposely sold.

With the above general remarks regarding the general condition of cotton in the Southern Maratha country, I give, in the following statement, an idea of the average annual area under cotton and the average production.

Name of District.	Average area of cotton in acres.	Average production in bales of 400 lbs.	Remarks.
1. Dharwar ...	5,95,221	1,19,108	Average of last 10 years.
2. Belgaum ...	2,05,907	43,542	—
3. Bijapur	5,08,049	95,170	—
4. Native States ...	2,03,616	29,047	—
Total ...	15,12,793	2,86,860	

Serial No. 4 includes the Native States of Jamkhandi, Sangli, Miraj, Ramadurg and Kolahpur.

On an average the area under Dharwar American is about 2½ lakhs acres, 90 per cent. in the Dharwar District and 20 per cent. in the Bijapur District. The following statement gives an idea of production and area in the Southern Maratha country.

Variety of Cotton.	Average area in acres.	Average production in bales of 400 lbs.
Kumpta	12,62,793	2,26,860
Dharwar American ...	2,50,000	60,000
Total ...	15,12,793	2,86,860

From the above statement it will be seen that the total cotton production of the Southern Maratha country is about 2¾ lakhs of bales grown on about

15 lakhs of acres. Out of this 16 per cent. is under Dharwar American cotton.

There are in all 11 cotton market places in the Southern Mahratta country where exporters and local buyers buy their requirements through their representatives or *dalals* (commission agents). The following statement gives the details of the arrivals of bales in each of the market places with approximate value.

Name of the Market place.	Cotton arrivals, in bales of 400 lbs.	Approximate value at Rs.350 per khandi of 784 lbs.
Hubli	1,00,000	1,75,00,000
Gadag	60,000	1,05,00,000
Dharwar...	3,000	5,25,000
Savanur	10,000	17,50,000
Bijapur	25,000	43,75,000
Bagalkot	30,000	52,50,000
Bail-Hongal	15,000	26,25,000
Athani	10,000	17,50,000
Miraz	10,000	17,50,000
Sangli	5,000	8,75,000
Kudach, Jamkhandi, Mudhol and Davanageri	18,000	31,50,000
Total ...	2,86,000	5,00,50,000

Marketing of Produce.—In the Southern Maratha country *kapas* as well as cotton (lint) is packed in a gunny which holds about 350 lbs. of *kapas* and about 150 lbs. of lint. Each filled gunny is commercially called a "*dokra.*"

Cotton Picking.—All cotton does not open all at once. So picking continues for about two or three months, depending upon the weather, the size of the crop, the labour available and other factors. Generally cotton fields are not picked till most of the bolls are opened, and it is not unusual to find many fields in which cotton from bolls is actually touching or falling on the ground. This is, I think, chiefly done to prevent theft and to control labour. But this has got many disadvantages. Cotton deteriorates in various ways if left open on the plants, and the sooner it is picked the better. By the present method cotton will be mixed with trash, i.e., broken parts of leaves, bracteoles, &c.

Cotton picking requires much care not to get any more foreign matter than can be avoided. But it is done by ignorant and careless labour, on account of which the owners will incur some loss as their cotton is sold at low prices. The rayats do not also take much care in storing cotton in their houses to avoid mixing of different pickings and even of different varieties.

The cotton crop is disposed of as follows:—Some rayats who are in need of money, or who think that they will get better prices for the standing crop, sell it before it is picked. This practice is in vogue and is carried on to an extent of 5 per cent. Such fields are generally bought in the villages by the village petty merchants who speculate on the prices of cotton in the coming season and deduct all charges incurred from picking up to disposing of the crop, from the estimated yield and buy the fields. In this kind of transaction both parties try to deceive each other. Some small rayats, to an extent of about 20 per cent., pick their *kapas* and sell it in their villages to petty merchants or street buyers (*Pinjars*). Similarly labourers who get *kapas* as their wages dispose of it also in villages. These country merchants deceive the ignorant people in weights, scales, &c. There is also a custom to sell the *kapas* in their store-room without actually weighing, and any one

of the parties may undergo loss, as this is a sort of gamble. The remaining rayats, about 75 per cent., bring their seed cotton in *dokras*, each weighing about 12 maunds on an average, to the cotton markets near their villages, and well-to-do rayats to big markets, where they will naturally get higher prices for their *kapas*. It is to be noted that only a few well-to-do rayats get their Dharwar American or Upland cotton ginned in the ginning factories near their places and keep the seed for cattle-feed and bring the lint in loose *dokras* for sale to big markets. This is to an extent of 5 per cent.

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The process of marketing cotton passes through certain well-recognised phases. It may be described as a progress from the grower to the small dealer, then to large dealers, thence to manufacturers, back through another set of wholesale dealers to the retailer, and so to the consumers. It is perfectly possible for the original grower of cotton and the ultimate consumer of cotton goods to be one and the same person. In fact, it is not an uncommon sight to us to find the farmer or his wife on any bazaar day in the cotton season buying household cotton goods and paying for them the money which he or she has just received for his or her *kapas*.

Thus we see in the present system too many middlemen between producers and consumers; and to eliminate all unnecessary middlemen, the co-operative marketing is quite essential.

In villages, co-operative credit societies are necessary as a source from which the rayats will get money to fulfil their needs. Then, as an agency for selling their produce at adequate prices and minimising the losses undergone by the rayats if sold through middlemen, co-operative sale societies are a great need in big market places. The object of these organizations is twofold, firstly to facilitate the improvement of agricultural methods and the spread of new discoveries, and secondly, to benefit the farmer by securing for him a larger return for his work. Both these objects are for the benefit of the community at large as well as of the rayats. For the production of large staple crops is to the great advantage of the country because they will be provided an ample supply of food and clothing. On the other hand, it is of value to have the rayat well paid for his labour, because only thus can he be for long induced to raise large crops and because this buying power is of great assistance in bringing about a demand for all manufactured articles which will enable the industrial population to be fully employed at good wages. Therefore associations of rayats, such as co-operative credit societies and co-operative cotton sale societies, are quite welcome, and are of urgent necessity for the financial uplift of our country.

(1) The place of the farmer in co-operative marketing is worthy of attention.

(2) The principal aim of co-operative enterprise is to help the farmer.

(3) Co-operative associations should be chiefly composed of farmers.

(4) Only growers of farm products should join.

(5) Co-operative associations should be controlled by farmers.

It is very interesting to consider what *rôle* the farmer should play in solving the problems of marketing his farm products. The time has arrived when we must advance by careful study and clear thinking, under the guidance of good leadership. We must profit by past experiences. We must study co-operative marketing a great deal more, and it is worth all the study and effort we can give it

Aim of Co-operative Marketing.

Let us first see in what way the farmer is connected with co-operative marketing, and perhaps we can better determine his responsibilities. The aim of co-operative marketing of farm products is principally to benefit the farmers. It is with the farmer in mind that co-operative associations come

into being. Other groups share in the benefits, to be sure, but it is principally the farmer we have in mind when we talk about co-operative marketing of farm products. When the benefits of co-operative marketing are enumerated, it is usually the benefits accruing to the farmers about which we are talking. If it were not for the fact that the farmer is the principal recipient of all the benefits accomplished by co-operative marketing, less interest would be taken in the movement to-day. Our economic society is so interdependent that one group cannot prosper without that prosperity being reflected to a greater or less degree in other groups. It is a case where the farmer can best serve others by serving himself.

Another very important fact about the co-operative associations is that they should chiefly consist of farmers; at least, it is intended that they should have farmer-members.

Co-operative organisation is instituted and operated not for any one person or class of persons, but is of the people, by the people and for the people.

Co-operation of the farmer and the business-man, whose interests are one and indivisible, will make the farmer salesman a familiar figure in the marts and markets of the world and bring to the farmer much-needed economic independence.

The only man who can help the farmer is the farmer himself. He has all the power. He has all the need. He should not do anything except to get off his knees. He should not lean on anybody but himself. It is an admitted fact that if he stands with his fellow-growers he can build an organisation that will solve his problems and do his work. Co-operation is here. It is his remedy. It is his weapon. It will achieve commercial independence.

Better farm products are produced when the selling is done through co-operative associations on the basis of grade and quality. Under the old system of selling there is an indifference to the matter of quality of crops while, under the new plan, the growers feel and show a greater interest in the quality of the crops they grow for the market, and are continually striving to improve their methods of production.

The farmer is not getting his share of the value of the product of the farm under the old system of marketing. Ordinarily, co-operative marketing means that the farmer's share will go to the farmer.

It is true there are possibilities for the members of the co-operative marketing associations, possibilities of better price than they have been receiving under the old system.

One of these possibilities lies in the elimination of the profit usually made by cotton merchants, men or firms, who buy cotton legitimately from the farmers and sell it legitimately to the consumer. These men or firms are entitled to a legitimate profit, but the co-operative association being a non-profit organisation will save to the members of the association that margin of profit ordinarily earned by the cotton merchant under the old method of selling.

Another possible method of increased price to the cotton association members is found in the saving of a certain amount of money on *kapas* on account of more careful grading and classing. It is not a reflection on the cotton buyer to suggest that he is not an expert in the matter of grading or classing. Every farmer knows the method followed by the ordinary cotton buyer. He takes a sample from the *dokra* of *kapas* and gives it a more or less casual examination. He does not measure the staple, but determines in his mind as best he can the grade and staple of the cotton, and offers a price for it which naturally covers the element of chance which he takes in the matter of grading. On the other hand, when the cotton is delivered to the association by the members, it is graded and classed by experts, and the experience of the past years has demonstrated that the grading and classing are of actual financial benefit to the members and that

their grades are higher than they would ordinarily receive under the old method.

Co-operation in marketing will make the farmer a better citizen. Through participation with his neighbours in selling his crops, the farmer will gain a better understanding of his duties as a citizen with respect to local, State and national affairs.

The primary purpose of co-operative marketing is the stabilising of the cotton industry from the farmer to the ultimate consumer and to secure the fullest return for the farmer. A co-operative farmers' business organisation must adhere to sound business principles if it is to succeed. The local unit or group is the heart of any organisation with a large membership. When the local unit ceases to function, the organisation will be on its way to the grave.

The main business of the Co-operative Cotton Sale Societies should be (1) to sell the cotton of its members and non-members for adequate prices by the auction method, (2) to sell other farm products of members and non-members at satisfactory prices, (3) to supply them pure cotton seeds, gunnies and *bardans* (cotton gunnies), (4) and to disseminate information regarding agriculture and trade amongst the rayats and buyers. The first thing to see to is that the *dokras* of the rayats should be weighed in their presence as soon as they are received in the compound and a receipt passed to that effect. Then if the rayat wants any amount for his immediate expenses, he may be paid 60 per cent. of the current value of his *kapas*. If the stuff is to be sold by private sale, then too the *dokras* should be weighed in their presence and a receipt passed as usual. Weighment in their presence naturally creates confidence in the society's dealings. *Dokras* to be sold by auction and by private sale should be kept separate, and *dokras* of different varieties of *kapas* should be stacked in different lots. *Kapas* for auction sale should be graded and classified by an expert grader, due consideration being given to colour, cleanliness, staple and ginning percentage. Then *kapas dokras* should be heaped separately according to the classes. A statement showing the number of *dokras* in each class and the ginning percentage of the stuff in each class should be sent to all buyers, along with the sample of each class. Then the buyers should send such samples to their millowners for inspection and get special limits of prices to purchase. The date of auction sale should be notified to all buyers, who will attend the auction and offer competitive rates for the stuff as there will arise a keen competition among them. Thus the rayats will release adequate prices for their stuff. Even in the case of the *kapas* to be sold by private treaty, the inferior and superior stuff should be kept separately, and attempts should be made to secure adequate prices accordingly. In the case of auction sale, strict and careful grading forms the important factor to secure satisfactory rates.

The rayats should become members of such cotton sale organisations, who will get a bonus on the quantity of stuff sold and a dividend on the share amount. The auction sale system will eliminate middle-men to some extent and bring the rayats in touch with the buyers.

The present drawbacks to the progress of the co-operative sale movement are: (1) want of adequate and timely finance, (2) want of branches to canvas business and to sell other agricultural produce, (3) want of systematic and vigorous propaganda, (4) and want of larger area of operation. These four important factors are interdependent one upon the other.

(1) *Finance.*—An important part of the organisation of the trade in agricultural products is the necessary financial organisation. The various steps in the financing of crops may be sub-divided into two, namely, (1) rural credit and (2) dealers' loan on produce.

Rural credit.—The farmers who produce the agricultural crops are required to take the first step in financing them. Those who own their

land have sufficient resources to make necessary improvements, to provide needed equipment, and to carry themselves on from season to season without borrowing. There are many others, however, who are required to operate on credit. This is particularly true of tenant farmers, owners of farms only partly paid for or unimproved, and those who are financially weak.

Long-term mortgage credits.—Rural credit is of two distinct kinds, which differ as regards length of time, purposes and sources. Long-term credits are required in order to purchase farm lands, make permanent improvements, redeem old debts and occasionally to equip farms. They are based mainly upon farm mortgages.

Short-term rural credits.—Distinct from these long-term mortgage loans are the short-term loans which are designed to carry the farmer from one crop season to another, to enable him to hold his crops for favourable prices, and in some cases to purchase equipment. They are based upon crop liens.

Short-comings of farm credits.—It is quite evident that farm credit is by no means an insignificant phase of crop financing. Farmers experience great difficulties in obtaining adequate loans in time, thereby hampering to some extent the purchase, improvement, and equipment of farm lands and obliging many farmers to dispose of their crops at times when, in their judgment, the market prices are unfavourable.

Dealers' loans on produce.—This point is quite self-explanatory.

So, timely and adequately finance to the cultivators forms an important factor leading to the success of the co-operative cotton sale societies. Now, how to finance them is the first question.

Rural credit organisations (co-operative credit societies) should be developed and more should be organised on a sound basis to form a network which would provide speedy, timely and adequate finance. Improvement in rural areas, such as social, financial and the like, would certainly lead to substantial development in cities.

Credit organisations should be the outcome of a general desire on the part of the rayats and should mainly consist of such rayats as would take a keen interest in the amelioration of the condition of their fellow-men in all respects. The co-operative credit societies should be governed by a managing body who should appoint a paid servant, a secretary, to conduct the daily business of the society.

Generally the farmers always feel the pinch of money, more especially on three occasions in the year, namely, (*a*) sowing time, (*b*) harvesting time, and (*c*) the time of paying the Government assessment.

The object of the co-operative credit societies should be to provide adequate and timely finance to rayats for the following purposes:—

(1) To effect permanent improvements in lands.
(2) To purchase bullocks, manure and agricultural implements.
(3) To build houses.
(4) To sink wells and tanks.
(5) For any other agricultural productive purposes.

Of course the District Central Banks are the fountain-head which finances the co-operative credit societies as well as co-operative cotton sale societies.

What is now done by the credit societies is that they submit a consolidated loan application of individual members to the Central Banks, who send their Inspectors to ascertain the real situation. On the recommendation of the Inspector the loan is sanctioned, but a good deal of time passes before it is sanctioned. Moreover, the finance thus provided is quite inadequate, the maximum credit enjoyable by a member being fixed on the assets of the credit society and not on the assets of the individual

member. In this case I would strongly recommend that the maximum credit should be fixed on the assets of the individual member. Thus the members are hardly able to extricate themselves from their pressing needs. Attempts should be made to improvise means for timely and adequate finance since agricultural operations hardly brook any delay in this respect. What the present system of financing the rayats by the credit societies lacks in, is that all the crops are not mortgaged and that by-laws 33A and 33B are not strictly enforced on members to sell all their produce through sale societies specially intended for this purpose. So loans should be granted to the rayats on condition that they should pledge all their crops, and that they should sell their produce, cotton or otherwise, through sale societies to ensure the safe recovery of the amount thus advanced. Before sanctioning a loan, the sale societies also should be consulted, and on their recommendation the loan should be granted, as they are the right agents to study the real needs and difficulties of the rayats and to make a proper valuation of the standing crops. But it is an admitted fact that most of the credit societies are not well-managed, the reason for which is, so far as my knowledge goes, due to want of co-operative education on the part of the managing committee, members and secretary. Attention should be directed in this direction. The secretary should be well paid so as not to give him any scope to resort to foul means. The conjoint work of the sale and credit societies in this direction would not only tend to stabilise and develop the credit organisations to the advantage of the rayats, but also the sale organisations. Attempts should also be made to increase the membership of these organisations, which would also stabilise their position. By this method no overdues can be seen.

So long as this network of co-operative credit societies is not spread over all the area, the sale societies should be allowed to finance their members in areas without credit facilities on the joint bond system. This system means that the advance should be made to a group of six or seven persons on their executing a joint pronote for the amount and pledging all their standing crops. This joint pronote should not only show the whole amount granted to such a group, but also the details of the amount paid to each individual requiring a loan. Such loans should be granted after carefully inspecting the crops, ascertaining the area under cotton and other crops, the number of acres he owns, and also taking into consideration the lowest market rate, and also the future tendency of the market. Thus this system throws individual as well as joint responsibility on the group of persons signing the bond, ensures the safe recovery of the amount, and also attracts all the produce of that tract.

It is not advisable to have too many societies, such as seed, implement, manure societies and the like, but one society alone should deal in all these things, as it would be able to concentrate its best attention on the work undertaken; it is very difficult to find honest, intelligent and good-intentioned men to manage a large number of such societies.

The basis of a co-operative society is self-government. The method of its work is mutual deliberation, mutual help and united action. Co-operative societies are really self-governing rural organisations and rural organisations are India's greatest need. The development of the rural organisations will lead to the material progress and the ultimate success of the sale organisations. The improvement of the rural areas will certainly tend to bring about development in urban areas.

(2) *Branches to canvas business and to sell other agricultural produce.*— Cotton-collecting centres (cotton canvassing centres) are a great need for the material progress of the co-operative sale movement. Since, as already stated, Hubli and Gadag are the two biggest cotton market places in the Bombay Karnatak, smaller cotton sale societies in the *mofussil* should be

converted into collecting centres, as they will find it hard to thrive properly on account of the following disadvantages:—

(1) Want of sufficient quantity of cotton of uniform quality.
(2) Want of ginning or pressing factories.
(3) Want of good residential quarters for buyers.
(4) Want of well-to-do commission agents for buyers.
(5) Want of healthy competition in sale on account of only a few buyers in these places.
(6) Want of banking facilities for buyers.
(7) Want of timely supply of waggons in places far away from the headquarters of the railway authorities.
(8) Want of godowns to stock goods.
(9) Want of covered sheds in the railway yards for storing goods before despatch; hence possibility of damage to goods by fire, rain and weather.

These smaller societies should collect *kapas*, which should be graded and sold on sample through bigger societies, like Hubli and Gadag, possessing all the needed facilities. If these smaller as well as bigger societies work independently of one another without any co-ordination among them, no substantial and beneficial results can be secured to the farmers.

The cotton sale societies should also undertake, on co-operative lines, the sale of other agricultural produce such as *juar*, wheat, groundnut, &c., in the interest of the cultivators. This activity should constitute a section of the sale society but should not grow into an independent body for reasons quoted in the case of various types of co-operative credit societies. The conduct of the business should be under the control of the managing body of the sale society and a separate establishment should be provided for the upkeep of accounts. They should not work independently of each other as the interests of each will be divided and as no material gain therefrom can be expected. Arrangements for adequate and timely finance to rayats should be made likewise in respect of raising these crops through co-operative credit societies. Collecting centres in the case of these food crops are also essential.

(3) *Systematic and vigorous propaganda*:—Seed depots should be started in the interior for the convenience of the rayats. Genuine seeds of improved cottons should be supplied to rayats at a reasonable rate. *Bardans* to fill cotton, and gunny bags to fill corn, should likewise be supplied to them. Demonstrations of preparing heavy cotton seeds for sowing by means of salt solution, and sowing seeds by drills should be carried on in the fields of many rayats. The method of preparing *juar* seeds for sowing by means of copper sulphate solution should be likewise demonstrated. The latter process will make the *juar* crop free from smut. Meetings of rayats should be convened in as many places as possible and the advantages of growing improved cottons and merchandising their produce through co-operative sale organisations should be explained to them. The crop should be inspected from time to time and scientific advice on matters connected with the prevention or removal of diseases and pests to crops should be given to them. The use of different types of manures for different crops grown on different soils should be explained to them. The use of improved implements should be advocated. The condition of selling all the agricultural produce through sale societies should be strictly enforced on rayats while imparting this useful information to them at this initial stage. The rayats should be made aware of the importance of picking the *kapas* clean, and of storing, separately, *kapas* of different pickings and different varieties, as the mixture will lead to deterioration in the quality, and lowering of the price. The rayats should be advised to discontinue the sale of standing crops to village petty merchants because this falls under the category of speculation

and no definite idea as regards the yield and the value of the same can be formed. So orderly co-operative marketing and timely and adequate finance will really aid in enlarging the business of the sale societies, to the great benefit of the farmers.

(4) *Larger area of operation.*—The operating area of the co-operative cotton sale societies at Hubli and Gadag is too limited to allow them to extend their business activities on a larger scale, smaller societies being already established within the present area of operation. So, it is advisable to reduce the smaller societies to the condition of collecting centres, to affiliate them to bigger societies and thus afford sufficient scope for the latter to develop the business in the best way they can, to the great advantage of rayats. The necessity and advisability of converting smaller societies into collecting centres has already been dealt with.

The advantages of co-operative sale organisations are manifold, as for example:—

(1) Weighment of produce is made in the presence of the growers and a receipt is passed.

(2) *Kapas* of different varieties is graded and classed and stacked in different lots according to the respective classes and varieties.

(3) Adequate prices are obtained by the auction method.

(4) No indiscriminate allowance to buyers is granted.

(5) Produce is insured against damage or loss by fire.

(6) Classification records are accessible to the rayats.

(7) Prompt payment of sale proceeds is made to rayats.

(8) Money is advanced on the deposit of goods up to 60 per cent. of the market value of the goods to meet immediate expenses at low rate of interest, i.e., Rs.9-6-0 per cent. per annum.

(9) Information regarding the daily fluctuations in the Bombay market is obtained to secure satisfactory rates for the stuff.

(10) Prizes are awarded to clean pickers; this encourages the rayats to pick *kapas* as clean as possible and secures him higher prices on the one hand, and on the other hand it reduces blow-room loss in the interest of the millowners.

(11) Supply of gunnies, *bardans* (cotton gunnies) and genuine and certified seeds of improved types of cottons, thereby bringing higher profits to rayats.

(12) Sample *kapas* is the property of the members of the society.

(13) A bonus is paid on the quantity of *kapas* sold.

(14) Dividends are paid on the share amount.

(15) Superior quality of cotton are sold in big lots, properly graded and by correct weights.

In short all their interests are fully safeguarded.

(c) *Suggestions.*—I am referring especially to the Hubli Cotton Market in making my suggestions.

The Hubli market is the largest in the Kumpta Dharwar area and commands a lakh of bales of produce, i.e., more than one-third of the produce of this area.

(1) The market at present is situated near the railway station in a very small area and lacks facilities for resting place for carts and bullocks when they come in to dispose of their produce. There is no room for this purpose outside the market place. This causes a good deal of inconvenience to the growers. There are no sufficient water facilities also, both for cattle and men.

(2) The cotton produce comes to Hubli from a radius of 80 miles from Hubli. The villages situated in this area in 80 cases out of 100 have no roads to cart the produce to the market. Usually just after the last picking of the crop there are ante-monsoon showers which stop the traffic

sometimes for a fortnight or so. The grower who wishes to dispose of his produce during this period is handicapped, and often loses the better prices.

In order to improve the first situation, the Hubli Municipality should take up the question of the proper arrangement of these difficulties. It is the proper body as it receives about Rs.50,000 income annually as tax from cotton carts coming into the Hubli market. Pressure should be brought on this body by Government.

As regards the second item of improving the village roads, the District Local Board is doing its best but for want of sufficient funds, construction of roads is not being taken up. I propose that a grant of 2 per cent. from the cotton cess now recovered may be given to the Dharwar District Local Board for this work in case they undertake to construct roads for cotton villages only.

(3) Cotton from a long distance comes in by rail. It is very hard for the growers to get their produce to Hubli in time by rail as they do not get waggons in time. It has been observed many times that hundreds of *dokras* lie in open place in the station compound for want of waggons, for days together, at the mercy of the rain, and subject to theft. Quality is spoiled, in addition to the loss by pilfering.

The only suggestion with regard to this is that the stations from which, usually, more than 500 dokras are booked, should be supplied with wagons regularly and covered godowns may be erected. To encourage more traffic the rate should be reduced. Pressure on the railway authorities to carry out these suggestions should be brought by Government.

(4) *Uniform weights*:—With regard to the absence of uniform weights throughout the Dharwar Kumpta area, a grower is being cheated, firstly, by the village *bania* if the transaction takes place in the village, and secondly, in the market places by the use of improper weights. This is very serious.

A standard weight in the case of cotton should be advocated and legalised, say 28 lbs. to the maund throughout the tract.

It has been a practice in bigger markets like Hubli and Gadag to sell *kapas* on the basis of a *nag* equal to 1,344 lbs. weight, and cotton (lint) on a basis of 336 lbs., while you find in other markets they differ. Bijapur and Begalkot use a basis of 200 lbs. called an *ataki*. Annigeri uses a *nag* of 1,456 lbs. Bail-Hongal uses a *nag* of 448 lbs. as its basis of sale. All these create confusion for the purchaser and also for the seller, in point of comparison of rates and calculations.

An uniform standard must be adopted to avoid these difficulties. The *nag* of 1,344 lbs. for *kapas* and the nag of 336 lbs. for cotton (lint), now used at Hubli and Gadag, should be legalised for the whole of the Dharwar Kumpta area.

(5) *Market organization*:—All the market places have their market committees organised by the *dalals*, merchants and mill representatives. They have framed certain rules regarding the management of the market and decision of complaints by arbitration.

This is all honorary work and is much neglected. Sometimes the use of improper weights in some shops is overlooked. Consequently loss has to be borne by the growers. Daily Bombay quotations and local rates declared on the day are not put up on a board in the market for the information of the growers.

To avoid above difficulties, there is a need of a paid whole-time man to look after this work under the guidance of the committee. A set of standard weights should be kept in the office of the committee to test the weights used by the *dalals*. Bombay and local rates should be notified daily.

I do not hesitate to recommend a law for the organisation of the cotton markets just as has been promulgated in the Berars if the expenses of the operations of this are borne by the Government or the Indian Central Cotton Committee; the present taxes on the grower are already exorbitant.

(6) *Agricultural Bureau Report*:—The exact area under cotton and the estimated yields are not determined here early by Government. Crop estimations are made only by private bodies. But in America, the first cotton producing country in the world, where cotton sowing continues from March 25th to the end of April and in some places even up to 15th May, the Department of Agriculture issues in the first week of July an official estimate, called "The Agricultural Bureau Report," showing the cotton acreage and condition of the crop. These Government figures are accepted by the trade as the basis of estimation of the yield for the ensuing season. In the Karnatak cotton sowing commences in the month of August and continues till the end of September and in some years into October also in certain parts. The Government publication of acreage under cotton as well as *kharif* and *rabi* crops is possible to be made here by the end of December. But at present the figures are not obtainable early and hence they are of no use to the trade. Therefore, it is earnestly suggested that early publication of information by the Agricultural Department is a great necessity, in the interests of the growers as well as of the consumers.

(7) *Scientific remedies for the removal of diseases and pests affecting the cotton crop*: Like all other crops cotton is also attacked by pests and diseases which create a great havoc in some years. Soils should be sent to the Agricultural Chemist for analysis and scientific measures adopted for their removal. Experiments should be conducted on the demonstration farms to evolve new strains which are resistant to pests and diseases. Attempts should be made to spread such types.

(8) *Clean picking*:—This point has been already touched upon. Still something more requires to be said about it. Special care should be devoted to pick the *kapas* as clean as possible as the clean-picked *kapas* would not only tend to bring higher prices to the growers but also reduce blow-room loss to a great extent, to the vast advantage of the consumers. This clean picking method should be advocated.

(9) *Seed Multiplication Farms*:—This subject has been detailed at length in my Bulletin No. 8 enclosed herewith, which will not fail, I am sure, to convey the impression that such farms are a great need in the interest of the growers as well as of the consumers.

The recent Cotton Transport Act has done much to put a stop to various malpractices in the trade. It is needless to remark that it is not the object of this Act to improve the quality of the existing cotton seeds. But my seed scheme chiefly aims at the entire elimination of the existing cottons which have deteriorated in quality since the advent of the railway, and the replacement of the same with genuine seeds in the whole of the cotton area in the Bombay Karnatak, as it is evident that the current method followed heretofore does not help to achieve the longed-for object; genuine and non-genuine seeds sown side by side, knowingly or unknowingly by the illiterate farmers, are very subject to natural and wild crossing. To solve this problem a big Government seed farm of 600 acres is an urgent need. Moreover the success in co-operative marketing solely depends upon the extension of the improved seed area by means of maintaining improved seed farms on a sufficiently large scale. The attention of the Royal Commission in this connection is invited to para. 197 of the Report of the Indian Cotton Committee of 1919. It is, therefore, earnestly urged that such seed farms should be started at the earliest possible date since the scheme has been strongly supported by the mill-owners, exporters, cotton

growers and also by the officials of the Agricultural and Co-operative Departments and in short by all deeply interested in agriculture and trade. But the question of sufficient funds for the establishment of such farms comes in. If Government cannot afford to run such farms on account of financial stringency, the Indian Central Cotton Committee should undertake this scheme, by making a special provision in the Cotton Cess Act if it is not permissible for the Committee to finance it as the provisions of the Act now stand. I understand that the Act provides for the creation of a fund to be expended by a committee specially constituted for the improvement and development of the growing, marketing and manufacture of cotton in India. In view of the enormous benefits resulting from such seeds farms to the growers as well as to the consumers, I beg to stress again their importance and the necessity for them.

(10) *Co-operative ginning and pressing factory*:—In most of the cotton centres, the ginning and pressing factories have combined to form pools, a system which is in many ways objectionable and prejudicial to the interests of the cultivator. Under this system, the procedure is, as a rule, for the same charge for ginning and pressing to be levied by all the factories participating in the pool. A certain proportion of this charge, considered sufficient to cover the actual cost of ginning and pressing, is retained by each factory and the remainder is paid into the pool and is divided at the end of the season *pro rata* to the number of gins or presses owned by the various members. In some cases pools have resulted from changes in economic conditions. The opening of new railways or roads, and consequent improvements in communication, has left ginning and pressing centres high and dry, with an inadequate supply of cotton to keep the gins and presses fully employed. The factories, in order to protect themselves against cut throat competition and to secure a reasonable return on the capital invested in them, have formed themselves into a pool. But both in these cases and in others in which pools were formed without such good reasons the result has frequently been that new ginning and pressing factories which have never worked, and which were never intended to work, have been erected in places already over-supplied. The only object with which they were erected, was to share in the profits of the pool and the mere threat to start working has been sufficient to secure the entry of their owners into the pool. In consequence, rates have been forced up to a level which can only be regarded as excessive, to the detriment of the cultivator who is unable to stand out against a monopoly.

The buyers in offering prices for cotton, take into consideration the ginning and pressing charges, and as a result the cultivator loses a portion of the profits in the form of these high charges. So ginning and pressing factories should be run by co-operative cotton sale societies. They should not be independent of cotton sale societies but should form a side activity of the same. The co-operative ginning and pressing factories should be erected by the aid of the reserve fund of the society plus the share amount collected from a large number of individual farmers; it should in no case owe its existence to the shares collected from capitalists. The factory erected by the use of the reserve fund and shares of so many individual farmers would be more stable and less liable to loss than that erected by means of shares from capitalists, since the former can withstand any unhealthy competition and opposition of any type from other local factories as it can afford to forego the profits for a certain time; the losses, if there be any, will be very low, *pro rata* to the larger number of farmer shareholders. The amount thus utilised out of the reserve fund should be made good out of the profits accruing every year.

The main object of having such a factory is to gin the members' seed cotton, press cotton into bales at the lowest possible cost and stock bales with the object of selling direct to Bombay mill-owners, in Hubli where a

"Karnatak co-operative central cotton sale organisation" should be started, thus eliminating a series of middle-men and bringing the large margin of profit devoured by them to the pockets of the member-rayats Such a factory will also serve a good purpose in ginning the sample *kapas* of the member for finding out the ginning percentage for the guidance of the buyers, who offer prices in proportion to the outturn. It will also be useful to send small sample bales to mill-owners in Bombay for their guidance. It will also help to educate the rayats in this direction, i.e., what the outturn means and why the highest prices are offered by the buyers. So a factory on these lines and of this type is a great necessity for the farmers and consumers.

(11) *Karnatak co-operative central cotton sale organisation.*—The co-operative cotton sale societies like Hubli and Gadag should organise a cotton sale union of their own at Hubli, which should act as an intermediary between the millowners and exporters in Bombay on the one side and the sale societies on the other. The main object of this union should be to keep or maintain sample types of improved strains for the information and guidance of the buyers, just as the commission firms do in Bombay, and effect sales of societies' bales of graded cotton at the lowest possible cost and at adequate prices. At times of heavy depression in the cotton trade the union should hold up cotton for a certain length of time, create a demand in the market and then dispose of it at favourable prices when some material advance in prices has taken place. The union would thus avert critical situations and guard the interests of its members at all times and also those of the millowners by supplying them with pure and genuine stuff. Arrangements to warehouse the bales, to guard them against loss by fire or otherwise (the rates of insurance on pressed bales being considerably lower than those on loose cotton) and to adequately finance the consignors, i.e., the members, through banks, should be made.

(12) I have already given details regarding the existing system of marketing. The only suggestion I can make in this connection is to try to have almost all transactions on a commission basis from the time it leaves the producer till it reaches the consumer, so that unadulterated stuff may reach the hands of the consumer.

There are only two intermediaries, viz., the *dalal* and the mill representative or the exporting firm. The *dalal* and the mill representative work on a commission basis and render good service. In both these cases the charges are moderate.

In the case of the exporting firm the services are very costly, as the firm buys the stuff on its own account. This is a sort of speculation.

The mill representative or the exporting firm holds the *dalal* responsible for all transactions. The *dalal* pays for the purchase first and then recovers the amount from the mill representative or the exporting firm as the case may be, by way of *hundis* or cheques. Since the branch of the Imperial Bank of India was started at Hubli, this work has been greatly facilitated.

(*d*) Fortnightly weather and crop reports, season reports, and forecast reports should be published in English for the information of the buyers. A bulletin in Kanarese treating mainly of important agricultural subjects and the methods of marketing all farm products profitably, fluctuation in prices and its probable effects, and the like, should be published for the guidance of the growers.

In conclusion I would add a few general remarks regarding the existing system of marketing and also the co-operative method of marketing. When all is said, the whole question of the ultimate success of these co-operative as well as private selling organisations lies in the matter

of cost. Will the cost to the farmer be less when he undertakes to sell his cotton through a co-operative association than when he allows his cotton to pass through the usual channels of trade? It is recognised to be impossible for the spinner to deal directly with the farmer individually. The spinner requires cotton as nearly as possible uniform in both grade and staple. Someone must collect the different styles of cotton, select them from the mass of the *kapas dokras* as they come from the farm, and offer even running lots to the spinner. The machinery erected by the trade for this purpose in the past fifty years is not satisfactory.

If the co-operative associations are to succeed, they must demonstrate that they can do this work cheaper than can the present merchants. They are not in existence long enough to demonstrate whether they can do so or not, and it is unfair to take their selling figures for the past couple of seasons as a criterion, because their organisation is not yet perfect. If they can do this work for the farmer at a lower cost than it is now done by the regular agencies of the trade, they will eventually succeed. If they cannot, then they will eventually disappear.

These associations recognise the difficulty of their undertaking and announce that they do not intend to compete with the merchant. They announce that they intend to assist the farmer in obtaining a full measure of grade and staple value for his cotton.

The main question is, simply, which costs the farmer the less, to agree to finance himself through the associations and to sell through them, or to deal with the country merchant as heretofore. It may be pointed out that, because the country merchant has been found expensive and unnecessary, his place will be taken slowly but surely by other agencies of trade, i.e., co-operative associations.

However, though I have emphatically said " no " in the beginning of my note, I admit it is not my intention to seriously criticise the existing system of marketing and to entirely uphold the co-operative method of marketing. A comparative study of the two systems described above will clearly demonstrate that the co-operative method of marketing predominates over the present system inasmuch as the efficiency of the former consists in minimising the cost by way of a very handsome bonus and the like to the grower which the latter cannot do. It is not possible for the co-operative associations at this stage to break away from the ruling market customs till the reserve fund and the share capital are increased to a considerable extent, when alone they will gain the power of " say-so " to the buyers, since the stability of the co-operative associations entirely depend upon the volume of the reserve fund and share capital and the loyalty of the members.

Rao Saheb G. S. SHIRAHATTI, Managing Director, Hubli Co-operative Cotton Sale Society, and Mr. KARMARKAR, Secretary, Gadag Co-operative Cotton Sale Society, Dharwar.

Oral Evidence.

49,697. *The Chairman*: Rao Saheb Shirahatti and Mr. Karmarkar, I understand that you both wish to speak to the same note, namely, that of Rao Saheb Shirahatti, who appears on behalf of the Hubli Co-operative Cotton Sale Society?—Yes.

49,698. What types of persons are on the committee of management of the Hubli Society?—There are five members (farmers) from the villages and three local people.

49,699. Are they large farmers or small farmers?—Some of them are large farmers and some of them are small farmers.

49,700. How many of them are large farmers and how many small?—Two of them are big landlords.

49,701. Do they farm themselves?—Yes.

49,702. And the others?—They are small farmers.

49,703. What amount of land is farmed by the smallest farmer member of the committee?—Nearly 50 acres.

49,704. Nothing smaller than 50 acres?—No.

49,705. Of the gentleman who are not farmers, are any *dalals*?—Only two of them are *dalals*. The chairman himself is a *dalal*, and is sincerely helping the co-operative sales. Another man is a *dalal* and a big landlord. He is also a member of the managing committee.

49,706. Will you describe, in rather more detail than is presented in the note, the method of sale? Some members bring in their cotton and they are paid something on account?—First they bring their cotton into the society's compound; it is then weighed in their presence and a receipt passed to them showing how many maunds, how many *khandis* have been brought in. Afterwards the cultivator asks for some money for domestic expenses. We then advance over 40 to 50 per cent.

49,707. 50 per cent. of the estimated value?—Yes.

49,708. The cultivator then leaves your establishment?—Yes.

49,709. You then proceed to grade?—Immediately the weighment is over.

49,710. You grade the whole amount of *kapas* in your yard?—Yes. Good lots and bad lots are separated and if the cultivator wants to sell immediately on the very day, we sell it to millowners and exporters and Bombay merchants.

49,711. Do you grade the lot brought in by each cultivator according to its value or do you mix the lots brought in by several cultivators with a view to grading?—Several cultivators bring in their *kapas* to the compound and we grade them separately.

49,712. Do you sell each cultivator's *kapas* as a separate lot?—We mix them together. Lots 28 per cent. good are mixed together; 27 is separated; 26 is separated.

49,713. How do you fix the price paid to each individual cultivator in selling the mixed lot? They have got their different prices?—When the receipt is passed to them, it is clearly stated how much quantity of a particular quality was taken from each cultivator. When that receipt is passed, then it is graded and mixed up. Prices are realized according to gradation.

49,714. The purpose of grading is to value each cultivator's lot before it is mixed with other lots for sale?—Yes.

49,715. Do your cultivator members give you instructions as to how, exactly, they wish you to sell or do they leave that to your discretion?—Sometimes they give instructions, sometimes they leave it to my discretion.

49,716. Do you sell all your members' cotton on your own establishment or do you take some of it to the market?—We sell on our own establishment.

49,717. Do you find that you have sufficient cotton on your premises to attract buyers?—For the present I have got a sufficient quantity.

49,718. Can you give us some indication of your daily or weekly sales in the season?—This year I am selling, since the last fifteen days, not less than one hundred bales (400 lbs. lint) every day.

49,719. Is that all your members' cotton?—Most of them are members and some are prospective members.

49,720. You do sell the cotton of prospective members?—Yes.

49,721. You give the member the full price, less your estimated working charges?—We deduct all the charges of which there is a record; otherwise we give the member the full price.

49,722. If that is so, what is the source of the profits shown in the sheet giving a statement of the progress of the Hubli Society between 1917 and 1927?—We get Rs. 2 per *nag* of 1,344 lbs. *kapas*. We charge one rupee per bale to the cultivator who brings in the cotton and one rupee to the buyer. We thus get two rupees ber bale.

49,723. You divide the marketing charges between the producer and the buyer?—No; marketing charges, such as *hamali*, stacking, godown rent, &c., are charged only to the producers. We charge only commission of Re. 1 to the buyer.

49,724. Do these two rupees make up the whole of the profit shown on this sheet?—There are other sources of profit. One pound of *kapas* is taken as sample from each *dokra* offered for auction. Besides, some business is also done in cotton seed and cotton gunnies. That leaves some profit to us.

49,725. Can you tell us how much profit is made on seeds? Have you got those figures with you?—No.

49,726. Can you tell us how much of your profits in rupees, annas and pies, that you have shown in this table were made on the sale of seeds?—No, I cannot say.

49,727. Can you tell by reference to your books?—I shall send you a note.*

49,728. Can you give me any approximation?—About 1,500 or 2,000 rupees on seed yearly, out of Rs. 8,000.

49,729. So, you made Rs. 6,000 in the year on Rs. 2 a *nag*, plus the value of the samples that you took?—The value of the samples comes to about Rs. 3,000.

49,730. Do you take these samples out of the carts after the weighment?—Yes, after the weighment.

49,731. You do not pay the cultivator for the samples?—We pay nothing to the cultivators and the cost of the sample is credited to the sample account and ultimately goes to the profit and loss account.

49,732. Do you take one pound sample from each lot that comes in?—We take one pound sample from each *dokra* that comes in for auction.

49,733. Is that regardless of the size of the lot?—It is taken from each *dokra*, regardless of the size of the lot.

49,734. Do lots vary in size?—They do.

49,735. So that the man who brings in a small lot contributes a higher portion to this particular fund than the man who brings large lots in?—It ranges between 10, 12 and 13 maunds or so.

49,736. You distribute that in the shape of dividend?—Dividend and bonus.

49,737. On what basis are your dividends paid?—On the basis of the share capital.

49,738. Is the amount of individual holding of shares limited by the constitution?—Yes.

49,739. To what?—Up to Rs. 1,000.

49,740. Your total share capital at the moment is how much?—Rs. 15,000.

49,741. How many shareholders have you?—2,346.

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* Not printed.

49,742. How many persons hold Rs. 1,000 worth of shares?—There are none.

49,743. How many Rs. 500 worth?—None.

49,744. What is the largest shareholder?—Rs. 100; that is, 20 shares.

49,745. Is it in order, according to your constitution, that an individual may hold Rs. 1,000 worth of shares?—Yes.

49,746. Your dividend is paid on the basis of the share capital, and apart from that you have a bonus?—Yes.

49,747. How is the bonus distributed?—On the number of *dokras*, in proportion to the quantity brought by the man and sold, 4 annas a *dokra*.

49,748. Do these prospective members who bring in cotton for sale get any bonus?—No, they are not members of the society.

49,749. I think the profits for 1926-27 were Rs. 8,000?—Yes, up to the end of December.

49,750. Take the last full year, Rs. 10,968. In that year you paid dividends to the value of Rs. 1,149-6-0 and bonuses Rs. 4,500. How did you dispose of the balance of the profits?—25 per cent. was given to the Reserve Fund.

49,751. Does the statement under the heading "Reserve Fund" represent the sum at credit of the reserved fund at the end of the year in question?—Yes, on the basis of 25 per cent.

49,752. What are the other funds?—There are the bad debt fund, the sinking fund, the depreciation fund, &c., &c. We purchase always cotton gunnies and seed gunnies and so on.

49,753. Why have they made a sudden appearance in 1925-26?—From the beginning it amounted to that.

49,754. At the end of 1926-27 you will insert another figure?—Yes.

49,755. Does the figure 2,346 represent your total membership?—Yes.

49,756. How many persons attended your last general meeting?—Nearly 500.

49,757. And you elected your committee at that general meeting?—Yes.

49,758. Are your members well satisfied with the results of the sales?—Yes.

49,759. Can you give the Commission any idea as to how much you have been able to make for your members, if any, over and above what they would have made by the sale of their *kapas* in the open market?—5 to 10 rupees per *nag* in auction sales and 2 to 3 rupees in private sales when the market is "bullish." Daily they are giving me four or five rupees more because the lots are graded and good lots are kept separate from bad lots. In the open market where large lots are usually sold, the buyers cannot get uniform quality; so the buyers come, believe me and I show them samples. The cotton is graded and the percentage is declared and so they willingly pay me four or five rupees more per *nag*. In auction sales there is competition; in competition they pay 10, 15, 20 rupees more than the market rate.

49,760. Who buys the cotton of the society?—Wadia Mills and Tata Mills chiefly, Ralli Bros., and others.

49,761. How much society's cotton, if any, does the society sell to *dalals* in the season?—None.

49,762. I notice in the annual report of the Registrar of Co-operative Societies of this Presidency that in the case of one society it was represented that there had been a deliberate attempt by *dalals* and others to boycott?—Yes.

49,763. Would you tell us at this stage a little about that?—The boycott is still going on.

49,764. How is it being done?—These brokers have become jealous owing to the growth of this Gadag sale society and have formed themselves into one party so as to prevent buyers bidding at the sale societies; in case the buyers bid, then they did not allow them to purchase from them. Even when Messrs. Ralli Brothers bid at the auction last year they had to pay a penalty to those brokers; they do not allow the members of the society or the buyers to gin their *kapas* in the market, nor even to press it, and further they do not allow the *hamals* to work at the sale societies. The position became so acute that it was very difficult for the Registrar and other people concerned to bring about an improvement in the situation.

49,765. What has been the effect on the business done by your society?—The business has been decreasing for the last two years as a result of this boycott. Many members are going to the brokers, but some have remained loyal. Those who go to the brokers get higher prices.

49,766. Why do they get higher prices outside?—Because no buyers come to the society's market; that was the case during the last season. This season the present Registrar approached Messrs. Ralli Brothers and requested them to bid at the auction. The system of the Gadag sale society is different from that of the Hubli society. There the grading is done by the Agricultural Department and every sale is made by auction. Only members' goods, of improved variety, are sold by auction. If the goods of other people are brought they are sold by private treaty. One, Mr. Belgaumwala, was approached by the then Registrar, Mr. Madan, and he helped the society to a great extent. Then there was one ginning factory owner who was induced to gin the *kapas* purchased at the sale societies. Now there is some understanding between Messrs. Ralli Brothers and Messrs. Patel Brothers who are bidding at the auctions, but they cannot afford high prices such as the Indian mills can afford. This year the co-operative banks have established some touch with the mills at Bombay. Only two auctions have taken place so far during the season; the third auction sale is due on the 4th of April next.

49,767. How much will be sold?—About 500 bales.

49,768. Would you give us figures just to show us the way in which the turnover of this society has been affected? When did the boycott begin?—First in 1919, and the society was registered in 1917.

49,769. What was the turnover in 1917?—2,000 bales; in 1918 it was 4,000; in 1919 there was the boycott but the figure stood at 4,000; in 1920 there was a failure of crops; with the result that the figure dropped to 3,000; in 1921 it rose to 5,000; in 1922 it dropped to 4,000; 1923 it went up to 5,000, and remained the same in 1924; in 1925 it rose to 7,000 bales, and finally in 1926 it dropped to 6,000 bales.

49,770. In spite of the boycott, you have had a steady rise in the turnover, have you not?—Yes, on account of the favourable season.

49,771. Could you give us an indication of how your membership has grown or shrunk?—It has been growing, except for the last two years; at present the total membership is 1,800.

49,772. Your boycott began in 1919, did it not?—Yes, but at that time it was not as effective as it became later on.

49,773. When did it become more effective?—In 1925.

49,774. With the consequence that your sales dropped by 1,000 bales?—Yes.

49,775. So that, so far, the effect of seven years' boycott has not been to destroy your society by any means?—The members are very loyal, and I

must say that the department is taking great pains in doing propaganda work and in arousing the interest of the cultivators, because at Gadag the brokers are harassing the cultivators to a very great extent.

49,776. What was the nature of the compromise that you made in order to stave off the opposition?—A conference was held in Bombay last year and it was arranged between the buyers here and the Agricultural Department that only members' goods of improved variety should be sold by auction.

49,777. How many bales of non-members' cotton were you selling in 1925?—Only about 500 to 600 bales, but they objected to this.

49,778. So that your actual drop owing to the boycott has been only some 400 bales?—Last year the reason why the figure reached 7,000 bales was because of the very good season we had.

49,779. Do you think your society will survive this boycott?—There is some difficulty. The society is trying to gin the *kapas*, to press it and to sell it in Bombay, but of course the amount of business will diminish because all will not combine together and agree to this arrangement.

49,780. Mr. Shirahatti, would you turn to page 285 of your note? You say: "The cotton crop is disposed of as follows: Some raiyats who are in need of money or who think that they will get better prices for standing crop sell it before it is picked. This practice is in vogue and is carried on to the extent of 5 per cent." Is it not a practice which is becoming less common now than it used to be?—It is gradually decreasing.

49,781. On page 286 you say: "It is perfectly possible for the original grower of cotton and the ultimate consumer of cotton goods to be one and the same person." I suppose it is possible for a man to grow cotton, to spin it, to weave it and to wear it, but you do not suggest that this is a very helpful course to pursue, do you?—The man grows the cotton and ultimately uses the finished article.

49,782. On page 286 you say: "The object of these organisations is twofold, first to facilitate the improvement of agricultural methods and results and the spread of new discoveries, and secondly, to benefit the farmer by obtaining for him a larger return for his work." Would you tell the Commission a little about how you achieve the first object? Where do you buy the seed that you sell to your members?—The Agricultural Department give a certain quantity of improved seeds for distribution and those seeds are distributed in a compact area belonging to the members.

49,783. Of the seed that you sell, what proportion do you get from the Agricultural Department?—We get 6,000 *khandis* from the Agricultural Department. This is a very small quantity and does not suffice for all our requirements.

49,784. Where do you get the balance of seed?—We have a village called Seravad where the departmental seeds are sown in the cultivators' fields, and seed from this village is taken by the society and sold.

49,785. Is it the case that your society sells to members none but the very best of seeds?—Yes.

49,786. You never sell inferior seed?—No.

49,787. Do you ever have complaints about the seeds that you sell?—Never.

49,788. On page 287 you say: "Another possible method of increased price to the cotton association members is found in the saving of a certain amount of money on *kapas* on account of more careful grading and classing." I do not see how you improve the price prospects unless you mix the lots of individual cultivators and grade them?—The grading is done after classification; the first class *dokras* are kept separate from the second class, and so on.

49,789. Would you turn to page 288, where you give some of the drawbacks to the progress of your movement. You give want of adequate and timely finance as one. What do you mean exactly by that?—There are certain credit societies in the rural areas, and those credit societies are not financed in time, or adequately to their requirements. There is a byelaw which limits the loan to be given to an individual member to Rs.200 or Rs.250, and this maximum credit is based on the credits of the members of the society collectively and not on the credit of the members individually. I suggest that the maximum should be fixed having regard to the credit of the members individually.

49,790. Is this credit required by the cultivator in order to sow and grow the crop or to take the crop to the market?—For the first operation.

49,791. That is in order to grow, not to market?—Yes.

49,792. The Commission has had before it evidence from the Indian Central Cotton Committee that the result of the enquiries which that body is conducting is to the effect that, in no district in which enquiries have so far been held, do growers in general have any difficulty in financing the marketing of their produce, but that they do require further credit for the sowing and growing of their crop. Is that, broadly speaking, your experience?—I do not agree there.

49,793. If you disagree, what do you say about it?—In Khandesh and Berar these people are given advances for seed.

49,794. So they require further credit to grow?—Yes.

49,795. They are able, if necessary, to hold their cotton for a reasonable period of time in order to get a better price; in other words, they can finance their sales?—There is want of finance for marketing. The cultivator has to pay his debts or to sell his crop as soon as it is ready. He is indebted to the moneylenders, and pressure is brought to bear on him to sell his crop as soon as it is ready.

49,796. So, you do not agree with the suggestion that, whereas the cultivator requires more credit for growing his crops, he can in most cases afford to market his crop, i.e., to hold up his crop for a better price; you think he is in need of further credit both for growing and for marketing; is that the position?—Yes.

49,797. At page 295, you suggest that ginning and pressing factories should be run by co-operative cotton sales societies. Is there any reason why the cotton sales societies do not run ginning and pressing factories?—It is for want of capital.

49,798. I do not know whether there are any other points you wish to bring out?—(*Mr. Karmarkar*): I have written out my points already, and I wish to place them before the Commission.*

49,799. Is there anything private in it?—No.

49,800. *Professor Gangulee*: Mr. Shirahatti, how long have you been associated with the co-operative movement?—For the last 9 years.

49,801. *Dr. Hyder*: You speak of gunnies; is there any standard set for the capacity of those gunnies?—No; it is 10, 12 or 13 maunds.

49,802. Does the *dokra* measure refer to unginned cotton?—Yes.

49,803. How many pounds is it?—336 lbs.

49,804. You say: basis of weighment of unginned cotton, *kapas;* what does it mean?—336 lbs., i.e., 12 maunds of 28 lbs.

49,805. And a *dokra* ginned cotton means?—Nearly 6 maunds lint.

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* *See* Appendix on page 311.

49,806. I understand that the *bardan* of tare weight in dry weather is 14 lbs. for dry *dokras*. How many lbs. per *dokra*?—14 lbs.

49,807. Why is it that from the total 2 lbs. more are deducted even when the *dokra* is dry?—That is the market custom; there is a custom in the market that a *dokra* of *kopas* should weigh 12 maunds. If a cultivator fills in one *nag* of *kapas* in three *dokras* instead of in 4 *dokras* according to market custom one gunny is lost and one *dokra* weight is lost to the buyer. So, the buyers, the *dalals* and the cultivators have combined in settling the market custom. I have been in the cotton line for the last 30 years, and everything, i.e., excess weight, etc., is taken into calculation by buyers when offering rates. If they fail to do so, they will lose their purchases. There are so many buyers, Ralli Bros., Volkart Bros., Indian firms. While paying, they do take all these things into consideration.

49,808. What chances have you of having uniform weights, either Indian or English?—Uniformity is absolutely necessary.

49,809. Why do people bring their *kapas* in gunnies and not in open carts? Your *dokra* at present means so many different weights in different tracts?—It is impossible to go against the market custom. That is the custom in the Karnatak. They must bring the *kapas* in gunnies. Otherwise, there is no protection. There are early rains in our parts, and so the *kapas* is protected by the gunnies. That is the long standing custom.

49,810. Does your society get any help from the branches of the Imperial Bank of India?—No.

49,811. Would you like credit facilities from them?—We have got our own banks, the Central Bank and the Provincial Bank. Why should we go to the Imperial Bank?

49,812. *Sir Chunilal Mehta*: You had a scheme for cleaner picking of cotton?—Yes.

49,813. What happened to that?—It is very difficult to induce all the cultivators. You know the condition of the Karnatak. We get some rains in the middle of March and April, and that is the busy time for picking. As soon as they see clouds or signs of rain they become afraid, they run to the fields and carelessly pick the cotton. I am spending every year over Rs. 1,000 for clean picking, but on account of these natural difficulties, it is very difficult to have all the crop picked clean.

49,814. You think that scheme is not practicable?—It is not practicable, but I am trying my best.

49,815. You consulted the Central Cotton Committee about this?—Yes.

49,816. Did you get any assistance from them?—Not at all. The Tatas sent Rs. 500; Mr. Wadia sent Rs. 500; the millowners are ready to subscribe any amount I require, but it is very difficult to induce the cultivators to pick clean. However, I try my best. From the experience of the last 4 years, I can say that, whereas formerly they were getting from 15 to 18 per cent. loss, now-a-days they are getting 12 to 15 per cent.

49,817. As the result of cleaner picking?—Yes.

49,818. You say it is not practicable?—They wanted me to reduce it to below 12 per cent.; that is impossible.

49,819. Some improvement has taken place?—Yes, certainly.

49,820. You do not think very much more can be done?—No.

49,821. *Sir James MacKenna*: In your statement of accounts, there are various items under salaries and allowances. What salaries are paid to the staff of the co-operative sale society? What is the salary of the Managing Director?—I get an honorarium.

49,822. How much? A couple of thousand rupees?—Nearly Rs. 2,200. That is given on the net profit of the society; after deducting the amount for reserve fund and distributing the dividend to the shareholders, on the balance I get 33 per cent.

49,823. That is less than Rs. 200 a month?—Yes.

49,824. What are these allowances?—They are allowances for propaganda work.

49,825. What connection did you have with the cotton industry before you became honorary Managing Director of a cotton sale society?—I was a cotton buyer for firms like the Japan Cotton Co., Divadkar & Co., and Mills.

49,826. For many years?—Yes, for many years.

49,827. *Mr. Calvert*: What is the minimum share requirement for each member?—One share of Rs.5.

49,828. The average works out to about Rs.6-7-0 per member?—Formerly it was a one-rupee share; in the year 1917-18 the one-rupee share was settled. After three years, we made it into Rs.5. So you get the odd figure.

49,829. Why do you pay a dividend at all when it only comes 6 or 7 annas per share?—In order to induce more people to become members.

49,830. It is only 7 annas a year?—It is quite sufficient for those poor people; they are not millionaires.

49,831. Are the people who bring the cotton to the market the actual cultivators bringing in their own actual cotton, or are they cultivators bringing in their own cotton as well as that of their neighbours, which they have bought?—They bring their own cotton.

49,832. You have a system whereby you advance to the cultivators a considerable sum in order to get them to bring their cotton to you for sale. Is that correct?—Yes.

49,833. Is not that the very practice of the moneylender which co-operation is trying to kill?—I do not think so. Unless they become members of the society, I do not give them a single pie. I induce them to become members of the cotton sale society, and then, on account of their domestic affairs, I advance them on the standing crop.

49,834. Which is exactly what the moneylender does?—No. We save them the high interest. The moneylender charges from 36 to 48 per cent. interest. If I go to a village and find that some poor cultivators are ready to pledge their standing crop, why should I not accept their offer, get them as members of the society, and help them with money at a low rate of interest?

49,835. That is exactly what the moneylender does?—The moneylender never advances money at such low rates of interest. They charge from 24 per cent. upwards. Besides that, they take some allowance in settling the rates. If the cotton is sold at Rs.200, they get a clear agreement from the cultivator to sell it at Rs.190. That is in addition to the high interest they charge, which I am not going to do. I am helping them by relieving them from the clutches of so many middlemen. This is co-operation; I am educating them to form credit societies. If Mr. Devadhar goes and asks them to form credit societies, they will never agree. My system is educating them.

49,836. What is the difference between your system and the ordinary system?—Joint responsibility, unlimited liability. If the cultivators join in one group, 10, 12 or 20, they are held jointly responsible. That is education in the methods of the co-operative credit society. They will be ready to form a credit society.

49,837. You say: "Such loans should be granted after carefully inspecting the crops, ascertaining the area under cotton, the number of acres he owns, and you also take into consideration the market rate, &c.;" and later on, on page 292, you say: "No definite idea as regards the yield value of the same can be formed," &c., &c.?—Actually they are selling standing crops.

49,838. The system seems to be exactly the same?—No, not at all.

49,839. In both cases you have standing crops, and you get an advance. In both cases advance is given?—They entirely sell their standing crops. It will help the cultivator to take advantage of the market if the cotton crop is placed with the cotton sale society, accepting some advance. On the other hand, the merchants entirely take possession of the field by settling the price.

49,840. On page 291 you give a large number of hints as to what should be done, but you do not say who should do all that?—The cotton sale society.

49,841. The seed depots should be started by the cotton sale society?—Yes.

49,842. The whole of this page then describes what you think should be done by the cotton sale society?—Yes.

49,843. "The crop should be inspected from time to time." Should it be inspected by the cotton sale society?—Yes.

49,844. On page 292, you recommend the payment of 60 per cent. of the market value of the goods to meet immediate expenses. Do you think 60 per cent. is required to meet immediate expenses?—Up to 60 per cent.

49,845. How, exactly, do you justify this loot of the poor cultivator to the extent of Rs.5,500 on the excuse of taking samples?—That is credited to their own account.

49,846. Where?—That is credited in the Sample Account. Whatever we get from the *dokras* is entirely kept at the disposal of the Government officer. There is a cotton grader, and he hands over to me every year, at the end of the season, all the graded cotton and seed.

49,847. What happens to this Rs.5,500?—It goes into the item of profits.

49,848. Why do you take samples worth Rs.5,500?—Unless you take samples, how can you grade and classify? How can you secure a higher price? That is very difficult.

49,849. You do not give them those Rs.5,500 back?—There are a number of *dokras*; we are doing a large business; it matters very little, looking to the size of the business.

49,850. *Mr. Kamat*: Speaking about this Rs.5,500 of samples extracted from *dokras*, is it not possible to give the benefit, or some part of it, to the individual seller?—Yes, that is given in the shape of a bonus every year.

49,851. That is an indirect form. One individual seller may perhaps give you samples of Rs.100 worth, and another may give samples of Rs.500 worth?—This is co-operation, and they must go according to the system.

49,852. Then again, on the receipts side you have shown certain items under "Miscellaneous charges." For instance, you charge *Charity*

Account, *Pinjrapole* Account, *Hamali* Account, *Namuna* Account, &c. These, I know, are customary in the case of the ordinary commission agents, but as you are an improved form of sale society, is it not possible for you to do away with these petty little imposts?—Certainly not. We should not go against the market current. That is the market system, and if we go against it, there will be trouble. That is the fate of cotton sale societies. They reduced commission to a certain extent and the dalals were annoyed. We should not go against the market current.

49,853. For *pinjrapoles* (cattle asylums) you collected Rs.800. What did you do with that?—We handed over the amount to the Pinjrapole Institution.

49,854. It is an indirect form of profit?—No, it comes under the heading, "Charges"; that is the market custom, and we cannot go against it.

49,855. You told the Chairman that the chairman of your society is a *dalal* by profession and a landlord. In this case the individual concerned may be extremely useful to the society, but, as a principle, I ask you, is it sound to have a *dalal* as chairman?—Of course, unless there is a local unit in this joint co-operative sale movement it is very difficult to succeed in these matters. A farmer cannot go into the market and sell his cotton. We must have a local unit and philanthropic, enthusiastic people must help the co-operative sale movement; otherwise, we are nowhere.

49,856. What is your system of communicating the daily quotations of the Bombay market to your customers?—I have got some friends in Bombay, Messrs. Gill & Co., P. Crystal & Co. They send me wires at my expense. They send morning wires and evening wires; all market fluctuations are communicated to me regularly by wire. That is all kept on the board for the information of members, and calculations are made of the local rate and Bombay rate. The Bombay rate is given, say, as Rs.400 and Kumpta *kapas* is given, say, as Rs.200, and so on. The difference between the Bombay and local rates is thus made known to the members.

49,857. If they themselves receive cables from foreign countries, either showing *teji* or *mandi*, do they honestly and fairly communicate to you the trend of the market?—Of course; they are not dealers, they are commission agents. Messrs. Gill & Co., and Messrs. P. Crystal & Co. are not dealing directly in cotton, they are selling cotton as commission agents, and certainly they do help me very sincerely and honestly.

49,858. You have said somewhere that you have started the system of giving prizes for clean picking. I see from your accounts that you have spent only Rs. 22 on these prizes?—In that year there was damage by rain.

49,859. You think that Rs.22 would stimulate clean picking?—One woman had brought four *dokras* in such a condition that everybody was astonished to see them, and so the society gave a prize.

49,860. You make certain suggestions that the railway company should give you facilities for sheds, as protection from rain or bad weather, before your bales are despatched. Have you tried to get this facility from the railways?—It is impossible; unless there is pressure from Government, they will not give it.

49,861. There should be pressure from Government?—Yes.

49,862. Then again, you say: "Where the cotton comes in near the railway siding, the municipality should do something"?—Yes. They are thinking of transferring the market outside the city; they have got nearly 50 acres of land. It is under consideration. Most probably they will transfer the market next season.

49,863. You also make a suggestion that in order to improve the village roads round about Hubli or Gadag, 2 per cent. should be spent by the District Local Boards; 2 per cent. of what?—For the present, the Hubli Municipality is taxing each cotton bale 8 annas. 2 per cent. of this municipal tax should be devoted by them to the roads. Again, they levy six pies on each cotton seed bag. Thus, every year their income comes to anything from Rs.75,000 to Rs.1,00,000. We press, annually, nearly one lakh of bales if the crop is good.

49,864. That goes perhaps to the Municipality; but the roads are in charge of the District Local Board?—That is a suggestion I have made.

49,865. Do you not see that the collection goes to the exchequer of the Municipality, not to the exchequer of the District Local Board. So, how can your suggestion be carried out by the District Local Board?—I think I am not reasonable in that point.

49,866. You think you are not reasonable on that point and that there is some confusion?—That is so.

49,867. *Dewan Bahadur Malji*: You are a whole-time worker in the service of this society?—Yes.

49,868. Doing no other cotton business in any place?—No.

49,869. What is the period of the cotton season on your side?—Five to six months. March, to the end of July.

49,870. How do you make up your annual accounts as ending on the 31st March?—It is inconvenient, but we are doing our best to close our accounts by the end of December.

49,871. The 31st December would suit you best?—Our Registrar has allowed us to do so, but that also is very difficult for me.

49,872. You say it is printed and published at the end of the year; shall we take it it is printed on the 31st December?—Yes.

49,873. How do you arrange for audit; is there any private audit, or is it only subject to Government audit?—No, one private Auditor is appointed by the society and paid Rs.350 a year.

49,874. It seems that you are on very good terms with your brokers and buyers?—Yes, certainly, the brokers are helping me in all respects; they sell my seed, thousands of bags every year. If you come to Hubli you will see how the whole market has improved.

49,875. Then may I take it that the only difference in point of profits between the sales through your society and direct sales is due to grading?—Certainly.

49,876. As you have been grading in the right order, they prefer selling through your society?—Yes.

49,877. Otherwise the conditions are equal?—But we are giving a bonus to members.

49,878. With regard to the weights, there is a difference between the market system and your system?—Yes.

49,879. Is the ordinary tare deducted by the market people 14 lb. per *dokra*?—Yes.

49,880. What do you allow?—I also allow 14, but indiscriminate allowances are not allowed.

49,881. It would be 8 on an average?—Yes.

49,882. Do you give credit for the difference of 6?—No; that is also a market custom; the buyers do take it into consideration while settling the rates, and thus the cultivators are not put to loss.

49,883. You always debit it to the account of the sellers?—Yes.

49,884. Is the practice the same in your part of the country, Mr. Karmarkar?—(*Mr. Karmarkar*): We charge only 4 for brokerage.

49,885. You do not make *pinjrapole* charges and that sort of thing?—We are making them.

49,886. Do you give that away ultimately?—Not for the last two years.

49,887. You are keeping them with the society?—Yes.

49,888. If the society is boycotted, why not discontinue these charges?—There was a chance of reconciliation, so it was preserved.

49,889. Cannot you do without making these charges?—It is not kept with the society; it is given to those institutions.

49,890. Could not you pay those things from your profits and give some relief to the sellers? You have not perhaps thought over the matter?—No, we could not; these are market customs and we have to abide strictly by them.

49,891. You told us there is a difficulty with regard to sheds in the railway compound?—(*Mr. Shirahatti*): Yes.

49,892. Am I right in thinking that on the railway premises they do not accept consignment notes until the wagon is ready to receive the goods, and that until then the bales of cotton will be lying on their premises at your risk?—Yes.

49,893. So that although the goods are on the premises of the railway company they do not treat them as goods for which they are at all responsible?—No. (*Mr. Karmarkar*): They are insured.

49,894. Against fire?—Yes.

49,895. Not against rain, &c.?—No.

49,896. Have you seen the Berar markets?—Yes.

49,897. Who does the grading work for the sales that have been carried on at Hubli?—(*Mr. Shirahatti*): The Agricultural Department.

49,898. You have got an Agricultural Department man there?—Yes.

49,899. Is he there during the entire season?—Yes, the whole year.

49,900. At Hubli if goods which are delivered to your premises are not sold that day, is there any arrangement for retaining them?—No, the unsold stocks remain.

49,901. You store them?—Yes. (*Mr. Karmarkar*): Yes, they are stored; we do not sell daily; we sell every week or fortnight.

49,902. When there is sufficient stock?—Yes.

49,903. The Berar cotton markets are held out as a model in this respect; you have both seen those markets. Is there any storage there for unsold stock?—(*Mr. Shirahatti*): The goods have to be disposed of on the very day; there is no arrangement for storage; in that way the cultivator is ruined.

49,904. So that the Berar type requires modification in that respect?—Yes.

49,905. There ought to be some arrangements for storage?—Yes; if the same rules were adopted in the Bombay Presidency there would be great havoc.

49,906. Is that your view, Mr. Karmarkar?—(*Mr. Karmarkar*): Yes. (*Mr. Shirahatti*): There may be a very poor attendance at the market one day, and the cultivators may not sell on that day; they may ask me

to hold the goods over for a week or 14 days or something like that. If you compelled them to sell on the very day they would be ruined; it would be merely making facilities for the buyers to enable them to ruin the cultivators.

49,907. Mr. Karmarkar, do you engage any *dalals* on your account?—(*Mr. Karmarkar*): No.

49,908. Then it is the *dalals* on behalf of the buyers who bring in offers?—The buyers themselves come.

49,909. In fact, yours is an auction sale business?—Yes, and these private sales we do ourselves with no brokers.

49,910. Direct business?—Yes.

49,911. Formerly you were in the service of Messrs. Ralli Brothers, I understand?—Yes, and a Japanese company.

49,912. Your services are lent by the Provincial Bank to the Cotton Sale Society?—Yes, for two months only.

49,913. You told the Chairman that the ginning people also declined to gin the cotton; what arrangement was made by you in that case?—It is ginned at a ginning factory belonging to the Chairman of our society; the *kapas* of our buyers who buy from us is also ginned there.

49,914. Gadag is a big centre?—Yes.

49,915. Will you give us some idea how much business your society does?—About one-sixth of the whole business.

49,916. About one-sixth of the business is commanded by your society?—Yes.

49,917. What is the reserve fund of the society?—Rs.37,000.

49,918. Are you experiencing any difficulty at Gadag just now regarding the disposal of the goods?—At present there is no difficulty.

49,919. You have been selling direct to the mills?—Yes.

49,920. By auction or privately?—By auction. Unclassed cotton is rejected and we have to sell that locally.

49,921. I do not know why these *dalals* should be opposed to your business at Gadag; if they could do with better grading arrangements, what is to prevent them doing the same thing at Hubli?—There is conflict at Gadag because there is disunion between the brokers themselves. At Hubli the market is big and the firms have got big offices.

49,922. Have you seen the draft Bill to deal with marketing?—Yes.

49,923. Would such a system do? Would you press for co-operative marketing in that case?—I would suggest there should be no broker on the part of the cultivator at all, and that the broker should never lend money to the cultivator, otherwise he is in the power of the broker. Sales should be effected after weighing; no sales should be effected without weighing. The whole market should be governed by its own body, without brokers; otherwise there is no real improvement, there will again be trouble and the cultivators will again have differences with the brokers; whether they are licensed brokers or not, they will give trouble.

49,924. In any case, the market at Gadag is owned by the municipality?—Yes.

49,925. They have no special arrangements to look after all the internal details of the grading, disposal of goods and so on; they only look to the recovery of their fees?—Yes.

49,926. So that if the business were transferred to local bodies, you would certainly insist upon having a competent officer to grade and dispose of the goods and see that the conditions of the licenses of brokers are properly observed?—Yes. The owners of the ginning factories should also be licensed.

(The witness withdrew.)

The Commission then adjourned till the 29th March, 1927, at 10 a.m.

APPENDIX.

Suggestions to Improve the Present System of Sale Societies.

(1) To have an organised Body governed by the Act, consisting of members, three-quarters whereof should be represented by the cultivators in the area.

(2) The sale should be conducted by that Body alone after making gradation. This Body should have departments for each article, and separate depots for separate varieties. There should be branches at small centres.

(3) The articles for sale should be brought in loose conditions, in order to avoid unnecessary burden, in the carts which should be weighed by platform scales, and the payments should be made to the cultivators on the very day.

(4) There should be standard uniform weights and measures in the whole country.

(5) The rural credit societies should have connection with this Market Body and adequate finance should be made by the credit societies.

(6) The distribution of seed for sowing purposes should be controlled by this Market Body. At present the cultivator is undergoing great loss owing to supply of impure seed.

(7) Small co-operative ginning factories should be started at big villages in the interior, and the ginned cotton from these villages should be brought to big centres in half-pressed cotton bales.

(8) Fly cotton from the mills should either be destroyed by the mills or should be sold to licensed persons only, who would be held responsible.

(9) If *dokra* gunnies are used for packing *kapas* or ginned cotton, the tare weight should be stamped by the licensed persons only.

(10) The ginning and pressing factories should be controlled under license, and their profiteering should also be controlled.

(11) Railway freights should be fixed in such a way as would be suitable for the Indian mills to make purchases. At present the system of railway freight is detrimental to the Indian mills, say, for instance, railway freight from Nagpur to Bombay and Nagpur to Calcutta.

Tuesday, March 29th, 1927.

BOMBAY.

PRESENT:

THE MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir JAMES MACKENNA, Kt., C.I.E., I.C.S.	Professor N. GANGULEE.
Mr. H. CALVERT, C.I.E., I.C.S.	Dr. L. K. HYDER.
Raja SRI KRISHNA CHANDRA GAJAPATI NARAYANA DEO OF PARLAKIMEDI.	Mr. B. S. KAMAT.

The Hon'ble Sir CHUNILAL V. MEHTA, Dewan Bahadur A. U. MALJI } (*Co-opted Members*).

Mr. J. A. MADAN, I.C.S., Mr. F. W. H. SMITH } (*Joint Secretaries*).

Rao Saheb DADUBHAI PURSHOTTAMDAS DESAI, F.R.H.S.. M.L.C., Nadiad.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH.—The research at present made is not satisfactory. It suffers from the lack of a continuity of policy and perhaps shifting of persons in charge. Usually, research work in a particular crop or on a soil requires to be carried out for a number of years before any result is obtained, e.g. cotton research and improvement has been taken up by the Agricultural Department since it inauguration, but I do not think any appreciable progress has resulted from the labours of the research expert. Want of continuity of a settled policy is in my mind the reason for it. It may be also due to want of funds or skilled workers. The same is the case with other crops. In fact I have no reason to believe that the Agricultural Department has been able to improve the quality or quantity of the crops of this Presidency. Research work in order to be successful requires a separate treatment for each phase of the problem, i.e., improvement in the quality in my opinion should be investigated separately from the investigation of the quantity and both should be subjected to various cultural treatments with a view to arrive at the financial results. In my opinion three experts instead of one should be in charge of each study and they should work in co-ordination. On the crops investigated on a farm there should not be one but three or four experts engaged and food and fodder crops should be preferred to special crops. One person in charge of all the phases or different operations cannot handle satisfactorily all the problems and one trial plot cannot serve all these purposes satisfactorily.

The scientific value of the indigenous theory and traditional methods of agriculture deserve special investigation in view of later investigations made in America in the cultural treatment of the soil. Every type of soil requires its special treatment and in my opinion the present cultural treatment practised in a particular tract is adopted after an age-long experience.

Investigations should be made in the light of the existing experience of indigenous methods practised in each tract of the country for various crops, with a view to improve the yield and to preserve the soil fertility. All cereal crops and all economic crops and plants have of late qualitatively

and quantitatively deteriorated on account of want of proper cultural treatment of the soil and a thorough investigation should be made to ascertain the reasons.

Research work requires a plant to plant study and to make it successful it is better to work small plots and the success attained should be tried on the cultivators' farms. The present big farms are wasteful.

We are far from having obtained satisfactory results on most crops. Cereals and pulses we have hardly touched; so, in my opinion, these crops should be studied in preference to cotton and other special crops. We want bumper crops and easy prices of food grains; especially this should be the case in view of the fact that food and fodder crops are generally exhausting crops and a marked deterioration is observed in their yields. Again, local opinion should be invited and in the light of this opinion improvement of research should be undertaken.

QUESTION 2.—AGRICULTURAL EDUCATION.—The supply of teachers and institutions is not sufficient. Every district should have at least one agricultural school where elementary lessons in carpentry and smithwork should be given and boys should be specially trained in the use of indigenous implements and in the knowledge of the nature and habits of the crops and of the agricultural stock of the locality. There should also be one secondary school of agriculture and industry in each division of the Presidency which should include in its curricula elementary agricultural economics and studies of all the allied industries such as weaving, spinning, dairying, fruit preservation, &c.

There is an Agricultural College in the Bombay Presidency located at Poona which gives higher agricultural training, but for lack of practical training the graduates turned out of it look upon service as a career. There are only two or three graduates of the Agricultural College who have taken up practical farming. In the rural areas primary education should have a distinct agricultural bias.

QUESTION 3.—Cultivators do not receive the benefit of the experimental farms owing to the following reasons:—

(*a*) They are few and far between.

(*b*) Those who visit them, somehow or other, do not return much enlightened and hence have no confidence in the experiments or the demonstration.

(*c*) As a matter of fact the farms have not come up to the level of the expectation of the ryots.

(*d*) Cultivators as a class are not conservative as is popularly believed, as is proved from the readiness with which they have adopted in the past, and are adopting at present, improvements suggested by the Agricultural Overseers.

(*e*) Want of funds, illiteracy and insufficient propaganda all combine to retard progress. The species of grains and other crops, including vegetables, dyes and spices introduced and developed, and the efficient cultural methods adopted in the past clearly point to the fact that by nature and habit the agriculturists of this country must have been of a high order of intelligence. They have domesticated a wild animal and made it to yield milk which for its richness, hygienic properties and yield is hardly surpassed by any animal including the cow. Somehow or other the spirit of enterprise is dormant at present, but I am confident that with a change in the revenue policy, and general attitude of Government towards that class, they may yet achieve much and improve their present lot.

QUESTION 4.—ADMINISTRATION.—The Bombay Government, like its agricultural population, is heavily in debt and I do not see it will be in a position to allot any additional grant for the improvement of agriculture.

The Government of India therefore should come to the help of this Government and grant necessary funds. This Presidency has reached the limit of its taxable capacity, and therefore cannot agree to the co-ordination of the activities of the various Governments in India, if such co-ordination leads to additional burden on the ryot. The Government of India can help, not by engaging experts under the Central Government, but by liberal grants of money to the Provincial Governments. We do not want improvements of our farm, much less expert advice, at the hands of a Government located at a far greater distance than the Bombay Government. The Government of India can however help us by sharing our burdens and by doing financial justice to the Local Government. At present the rural population is ground down between the two mill stones of the Government of India and the Local Government and the future is gloomy.

Again, the problems of various Provinces differ and All-India experts cannot handle them satisfactorily. The Government of India however can help the Province indirectly, viz., by lowering the railway rates on agricultural produce and the travelling charges of the agricultural labour. Besides they can impose export duties on bones and oil cakes used as manure. Agriculture is a transferred subject, and all experts engaged by the Government should be under the control of the local Council.

I am not satisfied with the services afforded by any of the services mentioned. Railways can help, as stated above, by reducing the rates which they have inordinately increased of late and by supplying waggons at the proper time and by preventing thefts.

QUESTION 5.—FINANCE.—Owing to restrictive laws agricultural credit is quite unsatisfactory. Credit facilities that were sufficient are at present nearly absent. Bankers have lost confidence in the agricultural and other rural industries, and are investing their capital in large industrial concerns and in banks in the cities, and so agriculture has received a serious set back and the investment that was considered safest years ago is now considered the most insecure. In fact, landed property which in all countries is considered to be a sound investment, is in this country held to be the most unsound, and it is not unusual to find even the co-operative rate of interest pitched as high as 12 per cent. The situation is indeed serious and only drastic measures can alleviate this sad state of affairs. I would propose therefore:—(1) to stop the insurance money going out of the country. The Insurance Companies doing business in this country probably invest the capital on landed property abroad where it helps in developing to an appreciable extent their agricultural industry, which no doubt competes with our produce in the markets of the world. These Insurance Companies should by legislation be compelled to invest the moneys realised in this country either in the shares of agricultural co-operative societies or to deposit the amount at a cheap rate of interest in the co-operative banks for long periods, to be utilized for the redemption of debts or for permanent improvements on the farms of our Presidency.

2. The Charter of the Imperial Bank should be revised, and the Bank should be by statute obliged to utilize its reserves for the development of the agricultural industries and the redemption of the debts of the cultivators. Deposits in postal savings banks in a district should also be placed at the disposal of the co-operative societies of the district and Government should issue loans to agricultural societies at the rate at which they borrow, specially for the purpose of reducing the debts of the cultivators. The policy of this Government has been of recent years to reduce *taccavi* loans. A liberal policy is not followed.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—The main causes of borrowing are higher cost of production and less return, and the demands of Government, which compel a ryot to borrow money from the moneylender at a

very high rate of interest. The Government demand varies from 40 per cent. to 70 per cent. of the net returns, and to meet this demand in time and to avoid penalties the ryot has to borrow at a heavy rate of interest, and to sell his produce at a cheaper price to the merchant, or to the same man. During the period when the Government demand is collected the prices naturally fall and the ryot is at the mercy of the banker or merchant. This double loss, added to the high cost of production, is too much for the industry to bear. I am of opinion that so long as the present land revenue policy remains as it is, the financial condition of the ryot cannot improve and whatever measures are suggested either by this Commission or by any other body, will merely serve as a patch work, unless the State itself undertakes the huge responsibility of relieving the agriculturists from their wretched condition.

Selling below cost, inelastic and unbearable direct and indirect Government demands, and high rate of interest, are the economic tragedies of the agricultural life of our Presidency and the causes of the indebtedness of the ryot. I have repeatedly, in season and out of season, brought these phases to the notice of Government and the co-operative institutions of this country, and have urged upon them the necessity of a liberal land revenue policy and of lending money liberally if they want to be assured of a steady revenue, and of an ever increasing indirect income such as income tax, forests, stamps, &c. By these steps alone a State can improve its financial position, and by these steps alone the agriculturist can improve the productivity of the soil which requires more manure, better tillage and better handling, and these things mean money which is scarce and is disappearing on account of an un-economic and destructive revenue policy. A manufacturer, a merchant or a trader can confidently rely upon protective tariffs to lift him up, but the cultivator who bears the burden of these tariffs has simply to sell his produce at whatever price is offered, and not at the price at which he can afford to part with it.

Agricultural credit is required for the following purposes, (1) for the redemption of debt and (2) for permanent improvements and for seasonal needs. As regards (1), the mortgage debt as recorded in Government books alone is heavy and to free the agriculturists from this burden would require crores of rupees. The same is the case for carrying out permanent improvements on the farms, and the loans for these purposes should be not for short periods but for long terms extending over a series of years. The co-operative societies cannot undertake this colossal responsibility because the primary societies, composed as they are of poor people, are poor and the landed property which they possess owing to the land revenue policy cannot command sufficient capital for this purpose.

As regards seasonal needs of the cultivators, cheap and sufficient capital, owing to various reasons, is not available in the *mofussil* areas. In short, so far as agricultural industry and other industries are concerned, all screws are loose in the machinery and only years of steady and continuous attention, and the necessary financial sacrifices, can set right matters and restore the industry to its former level.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—Fragmentation of holdings cannot be checked or prevented so long as Hindu Law of Inheritance is there; but the State can put the agriculturists in a position whereby that class would be enabled to remedy the evils of fragmentation. The State can re-model its land revenue policy, which is the root cause of it. It can also lend money to the agriculturists with which he can buy the neighbouring uneconomic plots and make his own holding economic. But I am doubtful whether the people would readily accept any proposals made by the Government. The danger is always there that the moment the cultivators improve their holdings and make them economic the State would be down upon them and demand higher revenue. Again, I am of opinion that until

sufficient industries are started in this country or until the doors of the colonies are opened to Indians, this question should be shelved. It would be cruel to throw a large number of dispossessed cultivators on the society who, though occupying uneconomic holdings, get something out of them. These remarks apply to tiny holdings and not to the scattered fragments of a fairly large holding, but even in this case I do not think consolidation is possible.

QUESTION 8.—IRRIGATION.—This Presidency is divided into three tracts Sind, Gujarat and Deccan. Deccan and Sind are the countries where large irrigation works are constructed. Practically no attention or thought is given to Gujarat in this matter, though Gujarat, where the population ranges from 400 to 700 per square mile, should have been the first to receive such attention. Irrigation requires density of population to make it a success. In Sind the population is 70 per square mile and there is practically no famine; yet expenditure is being incurred to have a system of perennial irrigation, while in Gujarat, which is subject to famine every third year, practically a very small fraction of the irrigation expenditure is incurred. In Gujarat there are small tanks, ponds and wells. But the former are silting up and are unserviceable while the latter have become quite unfit owing to the water table having gone down. The obstacles to the extension of irrigation are want of funds and apathy and carelessness of Government.

QUESTION 9.—SOILS.—In my opinion, a regular survey should be made and the parts suffering from water logging should be drained, especially if such drainage does not affect the water table in agricultural wells and the drained water should not be allowed to go to waste; it should be impounded. Reclamation of alkali soils is a very big question and requires thorough investigation. I do not know whether such soils have been chemically studied and the question is simply superficially approached; so, in my opinion experts having the special experience of the reclamation of alkali soil should be engaged. The question assumes importance in view of the ever expanding areas under artificial irrigation. In some places it has become acute in areas irrigated by perennial canals. As regards erosion, the only method of preventing it is the construction of drains of sufficient capacity to carry away the flood waters which carry away the surface soil. I should think Agricultural Engineers should handle this question; Government themselves should undertake the reclamation of such areas; private enterprise will only be a losing concern to those who undertake it unless Government advance loans and give concessions in the revenue demand.

QUESTION 10.—FERTILISERS.—The cattle have deteriorated and have decreased in number and so the manure produced by animals is insufficient and of not much manurial value. Only in such parts of the country where the cattle are properly looked after and fed is natural manure rich in manurial properties. Artificial fertilisers should therefore be introduced. But little or no progress has yet been made as regards the correct fertilizer for crops as well as soil. Every type of soil and crop, therefore, should be chemically examined and the fertilizer which would just suit the purpose should be recommended.

A soil survey of the whole Presidency should be made and the crops as well as fertilizers suitable for the soil should be suggested. Again, bones and oil cakes should not be allowed to be exported and a heavy export duty should be levied, and the factories in this country for the manufacture of artificial fertilizers should be encouraged. The Government Agricultural Department has not yet come to any satisfactory decision regarding the use of artificial fertilizers, except in one or two cases, and I do not know whether they are experimenting with artificial fertilizers usually sold by the merchants.

Rao Saheb Dadubhai Purshottamdas Desai.

QUESTION 11.—CROPS.—Practically all crops require improvement as all crops have deteriorated, and each crop requires to be studied and investigated with a view to improving its quality and quantity. As regards the introduction of new crops, including fodder crops, we have evolved and developed more varieties of crops than any other country in the world; crops suited for the needs of all, from the highest to the lowest, and grains of a type which will last even for years without deterioration. We simply require the improvement of the quality and quantity of the crops already existing. As regards the prevention of damage by wild animals, the only thing necessary is to issue gun licences on a liberal scale. There is no other method excepting the use of poisons, which I would not recommend.

QUESTION 12.—CULTIVATION.—The system of tillage has for years past been neglected owing to various reasons. Cultivators are not giving proper attention to tillage or cultural operations; want of confidence in the business of agriculture is noticeable all round and, with the weakened and diminished bullock and man power, very little is possible in this direction. The whole question is one of money and of the spirit of enterprise, which is not forthcoming. Frequent cultivation and a thorough preparation of the seed bed before sowing should be the rule, and in fact this practice prevailed years ago; but for many years past cultivation is neglected and in many cases sowing is done even before the cultivation, because of the fear that perchance the rains may fail to sufficiently mature the crop and Government revenue would have to be paid for nothing. People know the value of mixtures and rotations, but where the crop is standardized they do not resort to it but continue to grow the same crop year after year on the same field because they are afraid to bear any loss due to a rotation crop.

QUESTION 14.—IMPLEMENTS.—I would prefer the improvement of existing implements rather than introduction of new machinery. Especially this should be so so long as the agriculturist is ignorant. Besides, we have accustomed ourselves to the use of indigenous implements and our cattle have accustomed themselves to carry and work them, and I would not recommend the introduction of new implements and machinery so long as we are poor, so long as our artisans are not able to repair them, and so long as our cattle are not strong enough to work them. Besides, every type of land requires its own implements. Some types require heavy implements while some require light ones; some require deep ploughing while some require shallow ploughing, so designing of implements for each type of soil would require a lot of brains in the Agricultural Department. In short, so long as cultivators, cattle, artisans and the Agricultural Department are backward, we should not think of a general introduction either of machinery or of complicated implements; they will only prove to be a costly burden to the agriculturists.

QUESTION 15.—VETERINARY.—The Veterinary Department should be directly under the Director of Agriculture. At present there is no co-operation between the Agricultural Department and the Veterinary Department. Local Boards do not control the dispensaries; they simply keep accounts for these dispensaries and pay for them. The need for expansion is not adequately met, as both the Government and the Local Boards are poor. I would advocate the transfer of control to provincial authority provided the Provincial Government works them efficiently and economically. I am of opinion that small dispensaries, treating only ordinary diseases, should be opened in the villages, as they would be economical and at the same time serve all the purposes sufficiently, and one dispensary in each taluka should be in the charge of a veterinary graduate and equipped for both out-patients and in-patients. I do not advocate segregation &c. of animals suffering from contagious diseases. The time has not come for the restriction suggested.

QUESTION 16.—ANIMAL HUSBANDRY.—The breeds of the live-stock should be improved. It is, indeed, a laborious process. To me, it appears that by proper selection local breeds could be improved. But, at the same time, in order to hasten the work, I do not see any reason why cross-breeding with the best foreign types should not be undertaken; to make the cow economical the only remedy that appears to me worth trying is the grafting of foreign stock on the local varieties.

There is still ample scope for the development of the dairy industry. The transport facilities should be improved; refrigerating cars should be attached to the trains and special fast trains should run within 200 miles of big consuming centres. Unless the railways co-operate, the question of the supply of milk to cities will not be satisfactorily solved. Railway freight should be lowered on milk and butter and factories for the manufactures of casein products should be started; the import of foreign *ghi* and butter should be prohibited.

In my district, and in Gujarat generally, animal husbandry has reached a fairly high level of efficiency, and compared to other parts of the Presidency the percentage of butter fat is higher in the milk of the animals of my district; but frequent famines and want of green fodder in summer have lowered the yield of milk. I would suggest that Government should have a separate small dairy herd in each homogeneous tract for the improvement of cattle of that tract and for carrying out investigation. Pastures are not available in sufficiently large areas and at the same time, owing to shrubs and constant packing of the soil, the grazing value of these pastures has diminished. Pastures, in order that they may be useful, should be practically clear of shurbs and their areas increased. Pastures help to provide a ground for exercise and recreation for the animals and from this point of view alone they serve a very useful purpose. Grass borders in tilled fields are being broken up by cultivators and put under crops; the economic pressure is so great that grass borders are becoming a thing of the past. In order to encourage the practice of leaving borders Government should forego the assessment on borders solely provided for the cattle of the cultivators. As regards green fodder in the dry season, deep rooted species of *juar* should be investigated. This plant, by giving out shoots after the main crop is harvested, to some extent supplies green fodder in winter and part of the summer. The scarcity of fodder in our parts is felt most after March; in May it is most keenly felt and it is felt at a time when, in the interest of the industry, cattle should be well fed. The remedies for these are cheap ensilage methods and the provision of irrigation facilities for such areas. In many parts of Gujarat the water-table is going down and, in spite of deep boring, sufficient water is not tapped in many places; this has affected the standing trees and has made the business of tree raising a costly proposition. Besides, economic pressure leads the people to cut down existing trees. It is indeed a serious situation and nothing short of irrigation facilities on a large scale can remedy the evil. Otherwise, if the seasons continue as at present, the best efforts of bygone generations will be lost. The yield per acre has appreciably fallen and, though the area has not appreciably diminished, the fodder supply has not been adequate. The cultivator, on account of repeated disappointments and on account of heavy demands by the Government and the *sowcars*, has ceased to take practical interest in such matters. He has become apathetic and callous. In short, as stated above, all the screws of the machinery are loose and only herculean efforts and a lot of sacrifice on the part of the State can rehabilitate the cultivator and his business.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—On an average, except in the case of people dealing with special crops which require encouragement all the year round, the cultivator is free for about five months in the year and the necessity for a home industry thus becomes clear. Where the cultivators

on an average are employed for 10 months in the year I think any cottage industry has less chance of success. I would suggest therefore that a survey of the existing cottage industries should be made and only one suited to a tract should be introduced in that tract. For cultivators, a home industry is far better than a factory, for he can attend to sundry work on his farm, attend to his cattle and at the same time carry on his home industry I would, however, like that factories for the utilization of the bye-products mentioned in the Questionnaire should be started and encouraged. I am not of opinion that industrial concerns should move to rural areas. A rural atmosphere is uncongenial to such industries, while the existence of an industrial concern will bring with it all the evils connected with such concerns into the rural areas. It would lead to disorganization of both the agricultural industry and the industrial concern. I would recommend a more intensive study of each rural industry, especially those industries which require bye-products of the agricultural industry, for example, card-board making, utilization of straw, &c. Rural employment could be increased profitably by cottage industries such as spinning, weaving, &c.

QUESTION 18.—AGRICULTURAL LABOUR.—Railways should give special concession to agricultural labourers and these concession rates should be advertised in rural areas. In our Presidency there are still lakhs of acres uncultivated and I would recommend the encouragement of permanent migration of agriculturists from congested parts to those parts where land is lying waste. Banking facilities and concessions in the assessment rates should be given to the agriculturists. Loans extending for a long term of years should be made to them and the full assessment should only be charged after some years. I have observed that the revenue demand has proved, in many cases, a source of debt and consequent inefficiency of a cultivator on new land. Generally, the cultivator on new land has to fight the land and his fate also. Being a stranger he cannot get credit in the new locality; being upon a new land at a distance from his village, he cannot get credit in his old place and so he has to hack his way through under great difficulties. Unfortunately Government do not give *taccavi* to such new men for fear of losing the money. It is for these and other reasons that I advocate provision for ample banking facilities.

QUESTION 22.—CO-OPERATION.—Government should encourage the co-operative movement by liberally providing cheap capital, and unless this is done the co-operative movement cannot flourish in this country. The movement has not yet taken deep root and that is due to want of education and lack of funds, and I think it will yet take some time before it becomes successful.

GENERAL.—Elementary school education should have an agricultural bias; secondary education should have a technical and industrial bias and higher or collegiate education should train up persons in the theory as well as the practice of the occupations and professions. At present, persons who have received even primary education fly from the agricultural industry. It is the most repulsive industry to an educated man. It is not that he does not like it but the fact is he cannot thrive on it, either as a tenant or as an owner. The reasons are, there is little or no gain, there is no attraction for him there are no conveniences, no medical aid, no police arrangements and the man and his family are completely at the mercy of God.

The proverbial respectability of the agricultural industry has been demolished by legislative enactments and the social importance that was once attached to that industry is now transferred to other activities and the guardianship of the agricultural industry itself is in other hands. The industry did prosper, and along with its own prosperity brought prosperity to the whole country, during those times when the agriculturists themselves

held the reins of internal government and powerfully influenced the Central Government, but now when a talati, or a patel, or a clerk, or any subordinate officer has got enough powers to give endless trouble to a land holder, how can a self-respecting educated man take up agriculture as a career? Even the sons of agriculturists who are fortunate enough to receive a full primary education leave the industry and join either Government or private service. But this movement towards a different life should be stopped and all necessary steps should be taken in order to make agricultural life tolerable, and to make it attractive and tolerable necessary expenditure should be incurred, medical aid, educational facilities, transport and postal arrangements, and all the petty things that make life worth living, should be provided for in these areas. At present, though the rural population bears the cost of the State by direct or indirect taxation, it is practically left out in the cold.

A wider and more sympathetic outlook, fairness and justice to him, is all that a cultivator asks for. How can he work with zeal and put all his heart in a property that does not belong to him, and how can he make both ends meet with a heavy load of taxation and debt? I would not mind, nay would contemplate with satisfaction, debt being voluntarily assumed for productive purposes, for buying up an adjoining piece of land, for preventing further loss, and for enriching his holding. Such risks are assumed with a courage born of confidence in the future, but when the future is gloomy and uncertain, nature hostile, and Government an unsympathetic sleeping partner demanding a large and unbearable share, one can only expect indebtedness coupled with poverty, and agriculture and human and cattle power in a hopeless state. A strict administrative policy and wrong notions of efficiency have not a little contributed to the present agricultural inefficiency. Important questions are shelved for want of inclination but questions that would go against the interests of the agricultural population are at once taken in hand, and pushed through in spite of the protests of that class. What wonder is there if this treatment is reflected in the cattle and the fields? Cheap and half-starved cattle and cheap and poor manure cannot make two blades to grow where one grew before, and what hope, what incentive what reward, is there for the agriculturists of this Presidency if they toil from morn to eve on their farms, so long as the State is ever ready to take away the profits earned by working like slaves? I am of opinion therefore that there should be equality of taxation and a cultivator should not be taxed more than his brother in a trade or profession. He is after all, though illiterate, a human being and not a beast of burden. Capital has the tendency to move away from an unfavoured to a favoured business and how far the capital stock in the agricultural industry has been adversely affected by the insatiate demands of the State is amply proved by the scarcity of capital in that industry. The loss incurred on this account, in the price realized for his produce, is great, and the borrowing rate is far heavier than in any other industry. I regret I cannot enter more fully into this most important question owing to the limitations imposed on this Commission by the terms of reference, and indeed would not have made even a passing reference to it had it not been for the fact that one cannot completely ignore a measure that is politically, morally and economically indefensible, and which has a greater bearing on the agricultural life of this country than any other question before the Commission.

I have carried out economic survey of a taluka of the Surat District and the conclusions which I have reached amply corroborate my remarks in this note. I am not in favour of Government conducting special economic surveys in typical villages because, as a matter of fact, they have sufficient materials and statistics in their possession and what is required is to publish all of them. They have statistics of debt, crops, land and its tenure,

and cattle. The Agricultural Department possesses the most up to date information of yields of various crops, the Revenue Department keeps registers in which statistics of crops for every year are given for every village, and all the information necessary for any economic inquiry is in the Government record. The only things that are not found in the Government books are the statistics of consumption and, in my opinion, cultivators who have no confidence in the *bona fides* of Government officers will not submit to such inquiries voluntarily and it is not advisable to compel them to do so; such a step would add one more political wrong. But voluntary effort in this direction should be encouraged by allowing volunteers access to all Government records bearing on the subject of their inquiries.

Oral Evidence.

49,927. *The Chairman*: Rao Saheb Dadubhai Purshottamdas Desai, you are a Member of the Legislative Council?—Yes.

49,928. And you are, I think, from Nadiad?—Yes.

49,929. Have you agricultural experience yourself?—Yes.

49,930. Do you own or farm land?—I own and also cultivate land myself.

49,931. So that you are a practical agriculturist?—Yes.

49,932. How many acres do you farm yourself?—About 600 acres.

49,933. In Nadiad?—Not in Nadiad, but about 25 miles from there.

49,934. And have you interested yourself in the work of the Agricultural Department?—Yes.

49,935. Have you visited the farm at Poona?—Yes, once or twice.

49,936. And seen something of the work being carried on there?—Yes.

49,937. But you are disappointed with the results which the Agricultural Department has so far achieved: is that so?—Yes.

49,938. Have no improved varieties of crops been adopted in this Presidency as a result of research work?—I cannot recollect any crop, except perhaps sugarcane to a little extent, which has been adopted as a result of the efforts of the Agricultural Department. In fact, so far as cereals and other crops are concerned, for example, tobacco, they may have selected a better variety growing in one locality and introduced it into another and so on, but so far as I know I do not remember to have seen the Agricultural Department successful through research in introducing better varieties of crops. In fact, the varieties which have been in existence over a large area are still there; for example, let us take the case of tobacco; Government conducted a series of experiments on tobacco, and in my own district there was a Government farm, but they closed it down after spending about a lakh of rupees, because no results could be achieved. Personally I am of opinion that the experiments conducted on that farm were not on sound, scientific lines. However, be that as it may, the farm was a failure and subsequently the Association of which I am the Vice-President offered their farm to the Government to carry on the same experiments over there and now they have rather improved upon the former practice, and out of the various varieties of tobacco grown in the district they have selected one variety which has been named No. 6 which resembles the white Burley, and this selected variety is being introduced on the farms of the cultivators, with the result that some progress has been achieved.

49,939. Is cotton a crop which you grow yourself?—Yes.

49,940. What cottons do you grow?—I grow what is known as Broach cotton.

49,941. What other principal crops do you grow?—In addition to cotton, I grow tobacco and *juar*; of course I carry on my own experiments on a very, very small scale. I am experimenting with ground-nut also at present, to serve as an alternative crop to cotton.

49,942. Have you irrigated land?—I have well irrigation.

49,943. You do not grow any sugarcane, do you?—No; on our side we used to grow sugarcane, but owing to the water level in our wells having gone down very much, we could not make it a success. We are not sure about sugarcane, because we have a famine every three years and if the rains fail sugarcane growing becomes almost a speculative business, for the cost of production is very heavy. For all these reasons we have left off growing sugarcane.

49,944. To what extent do you adopt improved agricultural implements on your own land?—Perhaps I was the first to do so on my own account. I introduced tractors as well as ploughs, cultivators, harrows, and so on, but, personally, I am inclined to believe that the best way is not to go in for such things. It is better to have the indigenous implements improved for every tract of land. I myself have lost for want of a proper kind of implement for my own soil.

49,945. Have you yourself made experiments designed to improve the indigenous implements?—No, but I approached Messrs. Fowler and Company and others to design an implement which would best suit Indian conditions, because the sowing width on our side, and the soil and inter-cultural operations require particular types of implements; again when you have got a heavily manured farm you do not require a very deep plough for that, as it is no use turning up the soil in that fashion and it requires three or four operations according to the Western system of ploughing.

49,946. I see on page 312 that you take rather a gloomy view of the situation because you say that all cereal crops and all economic crops and plants have of late qualitatively and quantitatively deteriorated on account of want of proper cultural treatment of the soil, and a thorough investigation should be made to ascertain the reasons. Can you give the Commission your reasons for supposing that this decline is taking place?—Take *bajri*, for example, which is the staple crop in my district. We gave about four cultivations and after that when the seed bed was thoroughly prepared we put in the *bajri*; the quality by that means does improve. Crops that are produced in semi-dry conditions are better in quality than irrigation crops. Now, owing to the bad system of our land revenue management, we have got to grow *bajri* just in the beginning of the season and sometimes I have found that the people put in *bajri* even before they have properly cultivated; they harrow the land to a depth of about an inch or so, then they simply sow the *bajri* in summer just before or just after the monsoon sets in.

49,947. What do you think is the explanation of this deterioration? Has the seed deteriorated, or has the practice of the cultivator deteriorated?—Everything has deteriorated; the seed has deteriorated, the practice of the cultivator has deteriorated, they have grown apathetic, and the soil as well has deteriorated. In fact we cannot put in a lot of manure; about 10 or 12 cart loads of manure are necessary for an acre to get a good crop of *bajri*, whereas farmers do not do that now because it is very expensive.

49,948. Has this decline taken place within your own memory?—Yes, when I was young I could see they were careful in such matters.

49,949. Would you turn to page 313 of the note where, in answer to our Question 3 (*c*) you say: "As a matter of fact the farms have not come up to the level of the expectation of the ryots." In what way have their expectations been disappointed?—The cultivators are a very shrewd lot of

people and they are capable of seeing things for themselves; they can very well judge whether a plant or a crop is good or whether it is bad. Personally I think that the cultivators do not find any good coming out of these farms. I myself have faith in research work, but research work on very small plots, the man has to attend to each plant. At present one man is entrusted with too much work.

49,950. Would you like to see the agricultural research staff strengthened?—Yes, but I do not like the idea of having huge research farms.

49,951. *Sir Chunilal Mehta*: Would you say the same of tobacco farms, namely that the farms have not come up to the level of expectation?—No, that is a farm of our association; I am talking generally of the Government farms and of research work.

49,952. Is not Government running that farm now?—Yes; but we also pay part of the cost, and the policy was laid down in consultation with the association. I will admit that the research man in charge of the farm is a very good man, having had experience in Dohad and other farms, and he has been doing very good work. He has been able to isolate varieties of tobacco, grown in that district, and one variety which was found to give better yield is now being distributed in a part of the district. He is also experimenting just at present with another variety which can be used for cigarettes.

49,953. *The Chairman*: Would you turn to page 316 of your note, where in answer to Question 10, you say "Little or no progress has yet been made as regards the correct fertiliser for crops as well as soil." Have you been making any experiments yourself in the way of fertilisers?—On my soil Government made some experiments with fertilisers, but I do not think we had any appreciable results.

49,954. Have you yourself carried out any experiments?—Government supplied me with fertilisers, and I carried out the experiments with those fertilisers. In order to be a success, the fertilisers must pay financially. You cannot have a fertiliser which gives little gain per acre, because if famine occurs the fertiliser will be of no use and you stand to lose. All the same, I am of opinion that attempts should be made to institute a thorough soil survey, and fertilisers to suit different soils should be introduced. There should be particular fertilisers for particular crops and for particular soils.

49,955. Your criticism of the department is that experiments have not been attempted in that direction?—Yes. There have only been haphazard experiments. Everything should be done on a systematic basis; first the soil should be analysed, then the crops grown on that soil, and then fertilisers should be found out to suit the soil and the crop.

49,956. On page 318, you say: "There is still ample scope for the development of the dairy industry." Is there a demand for high quality milk and milk products?—Yes; there is a demand.

49,957. Is it not the case that under existing conditions large quantities of indifferent products are sold at very low rates, which makes difficult the retaining of a market at economic prices for better quality products?—The sale of Holland *ghi* should be stopped if it is to be a success. What we aim at is a higher butter fat percentage. If we get a higher butter fat percentage, we can afford to sell butter at a very cheap price. The well kept cattle in my district have a good percentage of butter fat, and whatever may be the price of cattle food, they can make dairying an economic success. A percentage of 6, even up to 10, can be got from a good buffalo.

49,958. Have you any milch cows of your own?—Yes.

49,959. Is the fodder problem a difficult one with you?—Yes; the fodder problem is a difficult one there. Supposing our land yielded fodder to the

same extent as it yielded before, then there would be no fodder famine there.

49,960. Are you growing any fodder crops yourself?—Yes; *juari* is a fodder crop; I have also some grass.

49,961. What sort of grass?—It is a good variety, *jinjiva* grass.

49,962. Do you preserve any fodder?—I only stack it.

49,963. You are making hay?—Yes.

49,964. Have you attempted silage?—No.

49,965. What do you think of it? Have you any experience of that?—I have seen silage in Government farms; I think it is good to have silage, but it is a very costly thing.

49,966. *Professor Gangulee*: How do you know, if you have not tried it?—From the look of it, I can say it would be very costly. If you want to promote silage, you must have the American system; everything should be done by machinery, from the cutting to the filling. Here you have to do most of the things by hand labour. If some cheap method of underground siloing could be found, it could be introduced here. Again, just at the time that the grass is fit for ensilage, the labour cost is very high.

49,967. *The Chairman*: On page 319 you point out that agriculture is not a profitable occupation to an educated person and you give reasons why that is so, and then you say that there was a time when the voice of the agriculturist was listened to and had more authority than it has in these days in the councils of Government. Do you suggest that local life should be revised and the panchayat should be resuscitated?—I should be very glad if it were done. We want an agricultural atmosphere; we do not want a commercial atmosphere. Just as the commercial people would thrive in a commercial atmosphere, so also we like the agricultural atmosphere. The administration at present is centralized and managed from one place. For example I might say: supposing there is a theft in a farm, the agriculturist has to run to the mamlatdar's *katcheri*, some miles away, lodge a complaint and engage a pleader, and if he does that, it takes a lot of his time and money. That is what I would call inefficiency in administration. For agricultural efficiency people should be able to get justice in the village itself. Not only that, the panches, the representatives of the people, should collect the revenue and send it to Government. If Government could arrange that, that would be a better and cheaper course.

49,968. How far do you think it is possible to revive local life in the face of improved communications and easy methods of transport?—There may be difficulties in the way, but Government should find out a way out of the difficulties. They should allow the villages some judicial powers and control, or Government might alter the existing laws and make them more elastic. They should change the present system.

49,969. Do motor cars ply for hire in your part of the country?—Yes.

49,970. Public vehicles?—Yes, of late there are some.

49,971. And they carry the rural population to the neighbouring towns?—Yes.

49,972. Do you not think that experience of that sort is bound to make a vast difference in the outlook of the rural population, and in some measure to destroy the community sense which used to exist in days when it was difficult to get from one village to another?—My idea is not that; the community sense which I would like to see revived is on these lines. Take the instance of Jamshedpur: There the Tatas are given many facilities by Government. In the same way every village should be given some facilities

by which it can ply its business better; every village should be given some rights and privileges and also some judicial powers.

49,973. Are there any panchayats in the district with which you are most familiar?—There are panchayats in some villages, but it is a misnomer to call them panchayats. They are small Municipalities doing scavenging work, that is keeping the roads in order and so on; they are not like the old panchayats possessing all power in the village.

49,974. *The Raja of Parlakimedi*: On page 312 of your note you say: "In fact I have no reason to believe that the Agricultural Department has been able to improve the quality or quantity of the crops of this Presidency." What crops do you refer to?—All cereal crops. Perhaps they may have done something to sugarcane, about which I have little experience. I say that as regards all other crops, including cotton.

49,975. What about the cotton crop?—They have not improved the cotton crop. Whenever any real improvements are demonstrated the agriculturists are sure to take them up. In places where improved variety has been introduced, I have found (I was in such a place some days back) that they have begun to take to the old ways. They are now mixing up their crops. There were thousands of acres which had been put under improved seed, but I found that they were now mixing up because they were not finding the improved seed a financial success. An improvement that is not a financial success is no improvement, in my opinion.

49,976. Do you mean to say that the department has not improved the cotton crops of the country?—No. Say, for example, one type of cotton gives you about $\frac{7}{8}$ inch length, and another type gives you 1 full inch; if, by growing the 1 inch variety you reduce either the crop or the ginning percentage, then it is no improvement on the $\frac{7}{8}$ inch length variety. That is what I mean. You cannot introduce it successfully.

49,977. The improved varieties are very popular in this Province; the people are growing them?—Not of their own accord. In Surat tract it has to be preserved and kept up by law. Even the agricultural officers themselves admit that the agriculturists financially do lose something, but the manufacturers might perhaps get good quality. I have tried it myself on my own farm. The improved variety was only a very small improvement. It was done in 1906 by Mr. Fletcher. He was a very great scientist in the Agricultural Department, and he introduced a cross between Kumpta and Ghoghari. Ghoghari is a short staple cotton and Kumpta is a long staple cotton; he named the cross 1027A. Now that is being introduced on a very large scale in the Surat district. About 10,000 to 12,000 acres or perhaps more were under that crop. We do not know what the ideas of Mr. Fletcher were in that regard. He himself never cared to introduce it on such a large scale in his time. However, it was discarded in favour of another variety, viz., selection "A", as they called it. It was a Broach variety, but since some years past they have left off selection "A," and they have reverted to Mr. Fletcher's hybrid. That is being sown on an appreciably larger area, and Government have passed legislation in order that there should be no mixing. You know, however, that in agriculture mixing can be done with only a few seeds. If I carry five or six seeds in my pocket, in three years I can get the whole field thoroughly mixed up with that variety. In agriculture, you cannot prevent the mixing of cotton in that fashion. To increase the staple from $\frac{7}{8}$ inch to 1 inch is hardly an improvement, and so it is possible that Mr. Fletcher never liked to introduce it on such a large scale during his time; otherwise, Mr. Fletcher himself would have done it.

49,978. Is it the only variety introduced in this Province, or are there others?—In Sind they may have experimented with American varieties, but I have not seen the length, the quality, and quantity per acre, and I have not come to any conclusion about the financial results.

49,979. You have no idea about improved cottons, and how they are popularly taken up in this Province?—From the price one could arrive at some conclusions. Whether it gives a good price or not is a good test of it. In the Bombay market I do not see that any of the American varieties grown in Sind are fetching higher price on that account than Surat.

49,980. To get a proper price in the market, there are several obstacles which the cultivator has to face?—There are obstacles in the path of the cultivator at every step for that matter; he has to face those obstacles. There I agree. But the crop, as introduced, must be of a thoroughly sound character.

49,981. You can judge whether it is popular or not by the extent to which it has spread in the Province? Have the improved varieties spread over the Province more than the indigenous varieties?—They have not, to that extent.

49,982. You have facts and figures to show that?—I have not got them here. So far as the whole of the Surat district is concerned, an improved variety is seen in a particular small area, while in the neighbouring areas (so far as the quality is concerned, there is a still better crop), there are some varieties, viz., Navsari cotton, 1027, selection A, and ordinary Broach cotton. These four varieties are grown in a particular tract. The Navsari variety is in fact superior to 1027A, but as I do not know the financial result of the Navsari cotton as grown by the cultivators on their own farms, I do not venture to give any opinion as to whether it is a financial success or not. But so far as 1027 is concerned, I can say that they do get about four or five rupees more per *bhar*, but they may lose, and they are losing in fact, Rs.10 or Rs.12 per *bhar* in the acre yield as well as in the ginning percentage, because the higher the quality the lesser the ginning percentage. Either there is something wrong with the merchants or there is something wrong with the cotton. I can say it is not the financial success it is supposed to be.

49,983. On page 312, you say "One person in charge of all the phases or different operations cannot handle satisfactorily all the problems, and one trial plot cannot serve all these purposes satisfactorily." Will you suggest the area suitable to try all experiments in?—My idea was this. There should be small plots, say for example one for the staple of cotton, because in cotton we are more or less concerned with the staple. On that plot the research man should do only staple work; he should not mind the quantity, the ginning percentage, and so forth. That man should look after the improvement of the quality of different crops. In the same area, in one plot there should be *juar*, in another plot say a fodder crop, and so forth, so as to give him work for the whole time. You know that for cultural treatment also one has to make trial after trial before he finds out the correct treatment for the crop.

49,984. I cannot understand experimenting in a plot divided into several small bits of plots. Especially in times of rain, do you not think that the action of water will disturb the experiments, viz., the efforts of different fertilisers and the like necessary agencies? Do you not think there is that danger?—I do not think that would be a danger. If the fertilisers mix up on a plot on which quality is to be tested. I will not mind it.

49,985. Further down, on the same page, you say "All cereal crops and all economic crops and plants have of late qualitatively and quantitatively deteriorated, etc." You refer to this in your Province?—I refer to it in the whole of the Bombay Presidency. I got this information from the Government records; as regards quality, of course, from the people at large and from my own experience, and as regards the quantity from the Government records also.

49,986. What is your honest opinion about it? Do you think that the people, in the good old days, were really more cultured as far as cultivation went than they are to-day?—Exactly. All the field and other works that are falling into decay prove that.

49,987. Or is it because there is no attachment to the land, and there is no desire to go back and work on the fields, and the people are more after appointments and other occupations? Is sufficient interest being taken in the land?—There is not, because of various reasons. If anything pays them, they go even to the Antipodes. If they could get some money out of the fields, they would remain on the fields rather than go somewhere else and work as clerks or underdogs to somebody else. The agriculturists would like to stick to their own profession.

49,988. Nobody obstructed the improvement of agriculture. What is the reason for the deterioration? Why should they forget their old culture?—There are so many reasons why agriculture deteriorates. You cannot lay your finger on any particular thing. My idea is that the deterioration that may be due either to Government action or any action of the authorities should be removed, and then the people should be given a chance to improve it themselves; I think they will improve, they can improve, and they have a mind to improve.

49,989. You make a remark that preference is not shown for protective irrigation works by the Government?—Yes. That reference is to my Province. In Gujarat, we have a famine every three or four years; there is a period of scarcity, and we are hardly able to mature our crops, and so I advocate that there should be irrigation. All the elements that should exist for sound irrigation do exist there: the agriculturists are of a superior order, and at the same time the population is from 400 to 700 per square mile. Irrigation requires those elements; otherwise the soil is mishandled and the land itself is spoiled.

49,990. What about the irrigation works taken up in the Deccan? Are they not all protective works?—Yes; and they do require to be constructed in the Deccan. But I am opposed to any irrigation works being taken up in Sind. The land is now mere waste that is virgin, and in 30 years or so it might go bad.

49,991. Why?—Because of the *kallar* or alkali and weeds and exhaustion. Alkali is a poisonous thing, and nobody can eradicate it. It is perhaps due to some bacteria in the soil.

49,992. Do you mean to say that the engineers are not going to provide for sufficient drainage?—The engineers do not know this, they simply know how to provide water. These problems crop up afterwards, and they have cropped up in our Presidency.

49,993. *Sir James MacKenna*: On page 314, you remark "Agriculture is a transferred subject and all experts engaged by the Government should be under the control of the Council." Will you develop that view a little more? What do you mean by that exactly?—What I meant was this, that our Presidency has got various types of soils; it has its own crops, cultivators have got their own habits and so on. So, our own people would be able to do it better. The Government of India experts cannot do it properly.

49,994. You mean that research should be provincial and not central?—Yes, research people should be thoroughly under the control of the local Council. At the instance of the Council or at the instance of non-official opinion research should be taken up.

49,995. Suppose a non-official member brings up a resolution that the department should grow this, that or the other crop, then the expert should

do it. Is that the idea? Suppose a member desires that an experiment of a particular kind should be taken up, and the Council insists, then the expert should do it?—It should not be done at the instance of only one member. Of course, the Council at present has got representatives from all the districts. Supposing one particular district decides that an improvement is necessary in any of the crops of the district, then, through the member for that district the Council may move that such and such a crop has deteriorated and that some research work should be done on it.

49,996. If the Council passes a resolution to that effect?—The Council may or may not pass that resolution but the Minister should take it up after consulting the people of that tract.

49,997. The Council calls the tune?—That does not mean that these experts should not move on their own account.

49,998. They can do it on their own?—We are not in a position to add even one more research man. Our present staff is too small for all these purposes, I think. The Government of India may well give us funds for all these matters. If they do so, we are prepared to do the whole thing ourselves.

49,999. At the foot of the same page you say "The situation is indeed serious and only drastic measures can alleviate this sad state of affairs," and you suggest stopping the insurance companies' funds from going out of the country? What do you mean by that?—That was in connection with the credit facilities in rural areas, indebtedness, &c.

50,000. But why make an attack on insurance companies in particular?—Because it would be cheaper than any other money. I have reason to believe that all these insurance companies lend money to the United States and the Colonies on farm properties there. They do some business in Canada also for the development of farms. Supposing I want to take up a homestead either in the United States or Canada, then the insurance company gives me money at five per cent., and I go and develop that area. This conflicts with our interests here. Why should we allow our money to go outside this country in order that it may be lent to these people. That is what I meant. I have been urging this measure for a long time.

50,001. Do you know where Mr. Lalji Naranji's Insurance Company (The Jupiter Insurance Co.) invests its money? It is purely a Bombay concern run by Indians?—I think they also may be sending their money to America. I do not know for certain.

50,002. Do you think that this would bring a great deal of money back to the country? Is there a great amount of investment in insurance funds in this country?—There is a lot of insurance being done in this country. Besides, English companies will be coming up and starting business in this country. I learn the Prudential Company is coming up to India to do business. Therefore, I think we shall be in possession of very large amounts for our own purposes.

50,003. Do you think that, if your policy is applied, that that would be a great incentive to the big British Insurance Companies to start business in India? For instance, some of those solid companies you find in places like Glasgow and other hard-headed centres of big business?—The English companies do not do much insurance here; they have recently started because of the legislation in England and they are diverting their capital from that country and bringing it here.

50,004. On page 317, talking about cattle disease, you do not advocate segregation of animals suffering from contagious disease?—When you have progressed all round then these measures should be adopted.

50,005. You have not people educated up to it yet?—No. I think everything must proceed in a parallel manner.

50,006. I am not quite clear about your idea of reconstruction of village life. I gather you say that the people are much oppressed because they have got to go to one Government official to pay their revenue and to another official to get judicial relief, and I infer that you think that the revenue collection and judicial powers should be delegated to villages. I was not quite clear whether you meant one particular village or all the villagers? —I should think that all the villagers should collect their own revenue and send it on to the Central Government.

50,007. From whom?—The panchayat can of course take that revenue from each individual in their village.

50,008. Make a committee in every village for revenue collection?—Yes, the panchayat should be a representative committee of the village for all purposes.

50,009. And then you would give that representative committee certain judicial powers to lessen the cost of judicial procedure and revive the old village life in fact?—Yes; the agricultural atmosphere would require such a step.

50,010. *Sir Chunilal Mehta*: Who would fix the assessment in the village? —There should be a permanent assessment. Why should he pay more than his brother in business paying income tax? I cannot see any reason why. Is it because he suffers more?

50,011. In fact, the assessment is too high?—It is already 20 per cent. of the gross produce, in Gujarat he cannot afford to give it.

50,012. Therefore, it should be reduced?—It should be reduced and made permanent if you want to have some agricultural improvement; otherwise, any improvement the Commission may suggest will have no effect.

50,013. *Mr. Kamat*: You give no credit to the Agricultural Department for improving the quality or quantity of any of the crops of this Presidency?—Yes, I am inclined not to.

50,014. Have they introduced a new variety of groundnuts which Gujarat has taken up?—Groundnuts were there and are there. They bring it from one tract to another; they have introduced, in a similar manner, onions in Konkan. Onions did grow before in other districts; this is propaganda work.

50,015. If the financial results are not satisfactory, why does the cultivator take so largely to groundnut in these days?—The cultivator did grow groundnut before. We never imported groundnut from either Japan or Spain, though we consumed a lot. What the Agricultural Department did was simply to bring it from where it grew and introduce it elsewhere. What I am talking about is the research work in quality and treatment of the soil, quantity of crops, &c.

50,016. You mean to say the Spanish peanut or the Japanese nut was introduced by the cultivator himself and not by the Agricultural Department?—There was that variety somewhere and it was introduced. It is not research. The Japanese spreading variety was practically an indigenous variety.

50,017. You have made a special study of revenue assessments; you know, however, we are not concerned substantially with that?—I know that, but it affects the agricultural output of the Presidency and agricultural business.

50,018. All that we can incidentally ask you is whether in your view the assessments are interfering and hindering agricultural progress. The burden of your note is that this is the case, and in one place you say that the assessments are 40 to 70 per cent. of the net produce. Have you got statistics to prove that?—Yes; even up to 70 per cent. according to our calculation, and 40 per cent. according to the statement of the Government Settlement Officer himself.

50,019. In the case of *juar*, for instance, can you give me an idea of what the average produce is per acre?—I think it depends upon the type of soil you are growing it in. In the Deccan it is about eight to ten maunds.

50,020. What would be the cash value of ten maunds?—Rs.15 or so.

50,021. What is 40 per cent. of Rs.15?—You are taking the gross; I am talking of net results. If from his gross earning of Rs.15 we deduct the cost of cultivation, &c., then of what remains of that profit, the State takes about half according to their own statement, and according to our calculations (occasionally they have admitted this) they take even 70 per cent.

50,022. According to the figures supplied by Government to the Commission in this Government Note, we are told that the assessment per acre in Ahmedabad is Rs.1-2-0. What percentage is Rs.1-2-0 of Rs.15?—In Ahmedabad perhaps they may have taken that amount.

50,023. In Surat it was Rs.2-11-0?—They must have taken into consideration the whole gross area and the whole gross assessment. That is not the way of arriving at it.

50,024. In Nasik it is 13 annas. What percentage is 13 annas of fifteen rupees?—That is not the way of arriving at assessment. They should take the cultivated land and the assessment and the incidence of assessment per acre of cultivated land, and then only these figures can be arrived at.

50,025. In Sholapur, it is eight annas per acre?—That may be but the outstanding fact is there that they take over 40 per cent. of the net profits.

50,026. You say the existing implements are fairly good?—Yes.

50,027. You have no faith then in the iron plough?—No, I have myself tried these implements.

50,028. Are you, then, of opinion that Kirloskar Brothers should close down?—No, Kirloskar Brothers will be useful for certain tracts; but what I say is that with our country plough the cultivator can at once go to the village carpenter and get it repaired, while for the iron ploughs or complicated implements he will have to pay a heavy initial price, and for repairs he will either have to keep spare parts or go to a skilled worker some miles away. That makes it rather uneconomic than economic. Otherwise, of course, even here the Agricultural Department can design very good implements which may give a higher yield; but what is the use of having a reaper and harvester and all these things combined in one implement, when the agriculturist does not know what is wrong with it when it breaks down?

50,029. *Dewan Bahadur Malji*: You have a certificate of Dr. Voelcker that your implements were found to be the best for the soil?—Yes, he did say that; he wrote it in his book. For example, we have got an implement which we call the blade harrow; that packs the subsoil. Now according to the latest developments in America, subsoil packing is absolutely necessary; our implement actually does that, so why should that blade harrow be replaced by a cultivator which does not pack the subsoil.

50,030. Have the manufacturers of implements ever turned their attention to the requirements of the various kinds of soils in Gujarat?—No.

50,031. In fact, no appreciable effort has been made in that direction?—No; it would require a very expert agricultural engineer, and that we have not got.

50,032. What is the area of your Association farm at Nadiad?—About ten acres.

50,033. Your Association managed it formerly?—Yes, we managed it for a very long period.

50,034. To some advantage?—I was very young at the time, but I know it did not give much benefit.

50,035. Were people more or less disappointed?—What we did was to introduce different varieties of tobacco from Egypt and Havana and other places on that farm. Scientific research, as it is at present practiced, was not known some years back; it was then all experimental work; for example, we would import seed, grow it and then see what the result was. Naturally we did not succeed generally; but there was one thing perhaps in which we did succeed; and that was in introducing our present method of dairying.

50,036. Is that system now continued there?—Of course, we gave this farm specially on this condition, that research work should be carried on there. I discussed the matter with Dr. Mann at the time; I told him we wanted research work on tobacco for cigar and cigarette manufacture, a business in which we had lost much years ago; we wanted to have that carried on there.

50,037. With the help of the Department, you have succeeded considerably in that direction?—We give them all the Association's income; they control the farm and supply one research expert; he is an ordinary graduate of our college. The work is being done on very sound lines, but the Government only supplies one man and he is not able, single handed to deal with this complicated problem as we would wish. Up to now he has been able to isolate the varieties; one variety, which we found yielded more, he has introduced in some parts of the district where of course that variety was not known. But I think that work requires to be improved upon; what we insist upon is research work and the improvement of the tobacco leaf itself, and that can only be done if Government puts in two or three workers; one man cannot handle it.

50,038. Have you represented this to the Agricultural Department?—Yes, but our Government is very poor and it cannot give any money. This one man was employed when Sir Chunilal Mehta was Minister; otherwise it would not have been taken up at all.

50,039. Did people lose interest in the Association's farm because they did not see any appreciable results from it?—Yes; we also felt that; in fact, since Government started their farm we practically closed down our farm because Government were doing the same work on their farm; but now Government have closed down their farm because they lost money over it and got no result. We therefore went to Government and asked them not to stop these experiments, but to continue them, and we gave our farm for that purpose; we gave our income also and the Government are doing it at present.

50,040. You told us that you did not know of any cotton seeds being used in your part of the country other than Broach?—There are many varieties in Gujarat, but I was talking of the Broach tract.

50,041. But even there when Dr. Voelcker was carrying on his inspections and experiments, foreign types were tried?—Yes.

50,042. But they failed?—There has been no serious attempt to introduce exotics in this country; they should be acclimatised and hybridised; but somehow after the failure of the first attempts the whole thing has been stopped. If cross-fertilisation experiments were carried on, it might be found to be possible to cross-fertilise two varieties of cotton.

50,043. In your district is anything done with regard to cattle breeding?—So far as milch cattle are concerned the buffalo gives as good results as any; why then should we have other cattle? At the same time, we could increase the milk yield of the buffalo if a farm were started in our tract where better breeds could be grafted on to our breed of buffalo.

50,044. Are tempting prizes ever offered for good results?—The Association used to hold shows on its own account; it used to collect funds and give

prizes; but the Association long ago gave up holding large shows because they were very, very costly. Recently Government have taken up that work.

50,045. In the dairying industry, where does the shoe pinch? Is it in regard to marketing?—It is the want of fodder and the high cost of cake and cattle feed.

50,046. Are you sure that the cream realises its proper value?—The market conditions of Bombay are the worst for cotton or cream or any other agricultural produce.

50,047. I wonder why you omitted any reference to marketing in your note?—Because I thought my note would be too long; I had to write it very hurriedly.

50,048. So that practically the farmer has to depend on the Bombay man for the value of the cream?—Yes; and the Bombay man, poor fellow, has to pay very heavily in municipal taxation, port dues, and so on: he is taxed very heavily. The Government has taxed the cotton growers to the extent of about 30 lakhs, simply to provide housing facilities to the mill labour. For cotton improvement we are charged four annas per bale, but we do not know what is being done with the money: we are not given any information as to the proceedings or happenings of that committee.

50,049. Do you wish their results to be widely published?—They may or may not be published, but I know we are being taxed and we are not being given any tangible advantage in return for this taxation. The cotton growers were treated very unfairly in that they were taxed to pay for housing in Bombay, where there is plenty of capital; that was very unfair on the part of the Government.

50,050. You have, for the most part, solved the fodder problem by means of the wells and pumping arrangements that are now being introduced?—We have our own problems though we have solved many of the problems ourselves. As regards the fodder problem, if the rains do not come and our crops do not mature, we cannot help it. All we want now is irrigation.

50,051. You and two other gentlemen conducted an economic enquiry in the Pardi taluka in the Surat District?—Yes.

50,052. You were Chairman of that Committee?—Yes.

50,053. What was the state of things with reference to cereal and commercial crops in that Pardi taluka in the Surat District?—That taluka is situated near Bombay, the greatest consuming centre in this country; nevertheless, the area under cultivation is being diminished and given over to grass; cereals and other crops do not pay the cultivators, and now it is a very poor taluka.

50,054. It practically depends upon grass and *babul*?—Yes, grass and firewood.

50,055. What was the condition of the holdings there?—I found the holdings very fragmented.

50,056. Even into holdings of two and three *gunthas*?—Yes, I have found fields of three *gunthas*.

50,057. Will cultivation ever pay with that degree of fragmentation?—My idea is that plots so small as that should be purchased by the neighbouring holder.

50,058. You want consolidation?—Voluntary consolidation by the people themselves. I do not want to see consolidation by legislation.

50,059. You have drawn a very gloomy picture: will you draw a hopeful picture instead?—Yes, I have suggested many things in my report of that

taluka and in my evidence it will require a lot of sacrifice; you cannot bring prosperity to that tract or elsewhere by speeches or advice; it has been going steadily down. Some sacrifice has got to be made, either by the State or others.

50,060. *Professor Gangulee*: Do you know of the Cotton Transport Act?—Yes, I took part in opposing it.

50,061. I should like to have your views on that Act?—The Government, as they say, introduced an improved variety of cotton in a particular tract, and in order that cotton from outside areas should not go in and spoil that cotton, Government passed the Cotton Transport Act. That Act is in force, though I do not think the people there are very pleased with it. The area under improved cotton is growing less and less now; it is being mixed up, and the pure stuff is little. Of course there is some unmixed cotton but that is confined only to a small area of some 9,000 acres or so, but even in that small area it is being mixed up by the cultivators. Instead of the area spreading from village to village, we find that it is just the reverse, it is contracting. The whole difficulty in the first instance was due to the Cotton Transport Act which virtually gave the control of the cotton market into the hands of exporters, mill owners, &c. They practically purchase not according to quality (as a matter of fact many do not know the quality) but they simply purchased it from the name of the town from which a particular consignment was booked. For instance, if they see the mark "Surat", they will buy the stuff outright, irrespective of the quality. Of course the forefathers of the Bombay merchants knew the qualities, but the present generation simply want to do business in a superficial, lordly fashion by wiring to their managers and agents to purchase so many bales of Surats which are sent over to them. When they found that Surat was being mixed up and that there was a lot of adulteration of cotton in the Surat tract they prevailed upon Government to have that tract isolated, and now that is going on. Our objection to it was——

50,062. *Professor Gangulee*: When you say "our objection", are you referring to any association?—I mean those people who were outside the zones and members of the Council who opposed it. The quality of Surat 1027A which has been introduced in that particular tract is not as superior as it was supposed to be, or even so superior as to produce beneficial results to the cultivators, and Government themselves have now realized this and are extending the restricted area, and they have now included, in that area, those areas which do not produce 1027A. In point of fact this has been virtually accepted by the Government by doing away with water-tight compartments. My point is any improvement of quality that has got to be kept up by law is no real improvement. There must be something wrong either with the merchants or the quality.

50,063. *Sir Chunilal Mehta*: Has the Agricultural Department been able to do nothing?—We have not found any results achieved by them?

50,064. Have you studied the reports of the Agricultural Department?—Yes; they used to set out the results in their reports by way of figures, but as it led to a lot of questioning in the Council the statements were discontinued.

50,065. Here is the report of 1924-25 which gives you exactly what you want?—We judge of results from our pockets, that is to say, we see whether our pockets have benefited by them or not. If we find that there is no reason to believe that our pockets would be benefited by those results, then we do not consider that the improvements brought about by the Agricultural Department are of any use to us. Of course the Agricultural Department have shown and proved that the quantity of the crops has suffered and for that we are very thankful indeed to the Agricultural Department.

50,066. Where have they said that?—In the bulletin which I showed you some time back. After having conducted a series of experiments which extended over a period of some 10 years, they gave the figures which proved that the land was yielding less year after year. But everybody knows that land has a tendency to deteriorate year after year if the fertility is not kept up. Now the cattle population is decreasing, we are not introducing fertilizers, and we are cropping the same land over and over again, so that it is only natural that the yield of crops will deteriorate for want of manure. With regard to the quality of the various crops I must say that the Agricultural Department has not put forth by research, as yet, any better quality for any crop except perhaps sugar cane, about which I myself have got no knowledge, but you know how it is faring at Manjri.

50,067. Is groundnut a paying crop?—It may pay in tracts which are sandy.

50,068. Does it pay in North Gujrat?—Yes. There is another point: when people introduce a particular crop they consider that it is going to be a paying crop, but Government must not take it that it actually pays them for all time. Suppose, for instance, we grow a particular crop on which we lose every year and somebody suggests to us to put in groundnut which is in greater demand and the prices of which has risen, Government must not come to the conclusion that groundnut is a crop which will pay them for all time immensely. I consider groundnut is a good alternative crop on exhausted soils.

50,069. Would you be surprised to find that in 10 years the groundnut crop, say, in Khandesh, went up from 4,000 to 140,000 acres?—Groundnut has a tendency to spread; it has got the habit of enriching the field, and instead of growing cotton, the people may be growing groundnuts. For all we know cotton or any other crop may have ceased to yield enough in Khandesh.

50,070. *Professor Gangulee*: Do you suggest that groundnut does not pay?—It must pay, but what I do say is that cotton could not have been paying to the people of Khandesh; at any rate we must take it for granted that, as those were all cotton tracts, the fact that they changed over to groundnut seems to show that cotton could not have paid them.

50,071. *Sir Chunilal Mehta*: Have you made any estimate at all of the profit to the cultivators by the introduction of improved cotton seed?—In Surat district they have been able to introduce one type known as 1027A; this type was evolved by Mr. Fletcher in 1906.

50,072. I know that, but I want to know whether you yourself have made any estimate at all of the profits to the cultivators from improved cotton seed?—I have asked the people and they told me that they got about Rs.4 or 5 per *bhar*.

50,073. What does that amount to in terms of acres?—To about Rs.1 or 2 per acre.

50,074. Are you aware of the statement made by the Central Cotton Committee that a non-official estimated the profit at something like 30 lakhs of rupees a year?—That was given out to the Council, but not shown on the actual field.

50,075. Would you be prepared to dispute the statement made by the Central Cotton Committee?—Yes, I do dispute it. I have grown a quantity myself on my own plots and I have also made inquiries from other cultivators, with the result that I have come to the conclusion that if it was at all likely to benefit them Mr. Fletcher himself would have introduced it long ago.

50,076. Do you suggest then that 1027 is capable of being grown on any soil?—Yes, *kumpta* and *goghari* are habitants of our parts.

50,077. Are you of opinion that the money which the Agricultural Department are spending has really produced no benefits?—I wish the Agricultural Department were given more money, that is to say, instead of providing it with 29 lakhs, I would like to see a provision of about 40 or 50 lakhs made. But there I must sound a note of warning and say that everything must be done on very sound, scientific lines. You know that for research work we want two men, instead of which only one man has been provided.

50,078. So it is your considered opinion that you want to see much more money spent on the Agricultural Department?—That is my view, but not of course if the whole department is conducted on the present lines. There should be a great deal of research work done.

50,079. Would you say the same with regard to the Co-operative Department?—No; the Co-operative Department, I think, is doing very well; I have no complaints to make except that the Co-operative Department do not press the Government to give them more money.

50,080. So that, in connection with the Co-operative Department as well, you would like to see more money spent than is the case at present?—Yes.

50,081. So that one of your definite suggestions is that more money should be made available for the Agricultural Department?—Yes, and that the right sort of work should be done by the Agricultural Department.

50,082. And also for the Co-operative Department?—Yes. The Co-operative Department now does its work with the limited funds made available to it.

50,083. If it is given more it will do much better work?—Yes. I want the Co-operative Department to lend Government's funds to the cultivators. I have said that Government should provide cheap money to the cultivator.

50,084. As regards the assessment, you say that it should be reduced?—Yes.

50,085. Should it be reduced in all tracts of the country? Should it be reduced in Bengal?—Not in Bengal, because there the conditions are different. In Bengal Government have set up big zamindars in a place which Government ought to have occupied.

50,086. Would you have the rates of assessment reduced in all parts of the Presidency? You know that the rate varies from tract to tract. In some places it is as low as 5 to 10 per cent. of the net receipts; would you reduce even there?—Wherever it is heavy it should be reduced. I think it is heavy in Gujarat; it is Rs.4, Rs.6 or even Rs.10 per acre, and there is deserves to be reduced.

50,087. Does it press heavily in the Deccan?—When there is famine, even the slightest assessment would press heavily on the poor.

50,088. As it is, do you consider that the assessment in the Deccan ought to be reduced?—I should think that the present level might be kept up.

50,089. In Khandesh?—In Khandesh also the present level might be kept up.

50,090. In Gujarat alone it should be reduced?—In Gujarat there should be reduction.

50,091. It is heavy in Gujarat?—Yes. We have to pay Rs.4, Rs.6 and even Rs.10 per acre. Our land is as poor as the Deccan lands; we have not got any black cotton soil as in the Deccan, and in some respects the Deccan lands are even richer than ours. It is our intelligence that is taxed. I should think that the Deccan lands might be assesed 12 annas to Rs.2 per acre, but our Rs.4 to Rs.10 should be reduced.

50,092. You spoke about agricultural improvement. The soil of Gujarat being sandy and hard it breaks the iron plough shares very rapidly?—Yes; it wears them out rapidly.

50,093. That has been our information too?—And hidden roots also come in the way.

50,094. Are you familiar with the tractors that have been introduced in Gujarat during the last four years?—Yes.

50,095. Have they been doing well?—The tractors should be used only for particular purposes. They should not be used often. My idea is that separate independent companies should be formed and they should own the tractors and hire them out to cultivators. The tractors will serve a useful purpose where the cultivator wants to plough deeper in order to eradicate deep-rooted weeds. Once in six years the land might be ploughed by a tractor.

50,096. The picture that you have drawn is naturally gloomy enough; that was to be expected. But will you tell us what has to be done to improve things and what is your remedy? Would you suggest to the Commission the steps that should be taken to improve the present state of things?—Research work should be regulated, and research should be done in all the crops. Then there is the question of railway gauges. When agricultural produce is transhipped from one gauge to another there is a lot of damage done to such produce. The railways should reduce their rates; they have recently increased their rates by 30 to 40 per cent. For example, if a mango graft has to be sent from one place to another, the transportation costs more than the actual cost of the graft.

50,097. So you want better communications?—Cheaper communications.

50,098. Would you say the same about the roads in your tract?—Yes; they are simply tracks.

50,099. Much more money should be spent on the roads?—Yes.

50,100. Supposing there was only a certain amount of money available; would you spend it on education or on roads?—I would spend it on education, not on roads.

50,101. Expenditure on roads, in your opinion, would not benefit the agriculturists so much as expenditure on education?—If he were educated he would be able to cultivate the farm better, provided of course he is not driven out of the farm as a result of the education he receives.

50,102. What else?—For improvement of crops, I have suggested research work, then development of communications, draining of waterlogged areas, improvement of soils where sodium salts come up by artificial water supply. And as you are a Member of Government, I may also suggest that you should do away with your present land revenue policy. So long as the present land revenue policy is persisted in, there will be no inducement for the people to adopt improvements.

50,103. What do you want?—The rates of assessment should be reduced in all heavily taxed parts of the Presidency, and the land revenue should then be made permanent.

50,104. Is that the main thing?—Yes, because you will then give a better value to the farm; that will give the cultivator a better mortgage value for his farms; better mortgage value means more money available for improving the farm; it will also give him a better social status, and it will lead to non-interference on the part of Government officers.

50,105. *Professor Gangulee:* The Government should spend more on agricultural research, and tax the people less; is that so?—The agriculturists did give taxes to Government when they were in need of them. When

there are other interests, Government should tax them also equally. Government should tax all equally. I do not say that the agriculturist should not be taxed, but as he is a human being he should not be taxed more than any other human being.

50,106. Have you seen a tendency during the last 10 or 15 years for people who used to work on their lands, to become simple rent receivers, to do nothing in the field and to live in the towns rather than in the villages?—Yes. After all, investment in land should be encouraged and not penalized; again on our side the acreage of land held by tenants is very small, and the land does not remain in the hands of the tenant for a very long time. After a short time, it reverts to the owner, who puts more capital into it and again passes it on to another tenant. That is the usual process that is going on.

(The witness withdrew.)

RAO BAHADUR BHIMBHAI R. NAIK, President, District Local Board, Surat, and Member, Indian Central Cotton Committee.

Replies to the Questionnaire.

QUESTION 2.—AGRICULTURAL EDUCATION.—(i) No.

(ii) Yes, in the Kaira, Broach and Ahmedabad districts.

(iii) Yes, as far as possible.

(iv) Yes; on the other hand admissions have to be refused for want of room.

(v) The desire to improve agriculture or to secure an appointment.

(vi) Yes.

(vii) Too much attention can never be paid to nature study, school plots and school farms, which are the chief instruments for the spread of agricultural knowledge.

(ix) They mostly take to agriculture; some are taken on as teachers in schools with agricultural bias.

(x) (1) If by middle class youths are meant those who attend secondary schools, the best way would be to have agricultural plots attached to these schools, where boys are made to do some agricultural work. This can be allied with the handwork which boys in such schools should do.

(2) Graduates in agriculture should be given preference in Government service, specially, in the Agriculture and Revenue Departments.

(3) The B.Ag. who passes out highest every year should be given a high post every year as is the case with the B.E.

(4) Special facilities should be provided for those who go in for farming by,

(*a*) giving them training as apprentices, with a stipend, at Government or private farms, where they can pick up a practical and commercial knowledge of farming,

(*b*) providing suitable lands,

(*c*) starting them with long term loans on easy terms,

(*d*) raising the prestige of the agricultural profession in the public estimation and,

(*e*) starting agricultural colleges or high schools in the various divisions of the Presidency such as Sind, Gujarat and Karnatak.

(xi) No, none to my knowledge.

(xii) By opening night schools with enthusiastic teachers, and offering attractions such as prizes, etc.

(xiii) Educational facilities will have to be administered by Local Boards but the finances should be supplied by Government.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) Demonstration farms, to a certain extent, and demonstrations on the cultivators' plots have been useful. Leaflets should be issued and magic lantern lectures or cinematographs might be employed.

(*b*) Encourage local field demonstrations all over the district by helping private efforts and holding small demonstrations at fairs, etc. The propaganda staff will have to be strengthened. The Revenue Department should be co-ordinated with the Agriculture to a greater extent.

(*c*) None except that experts should prove their usefulness to the people.

QUESTION 4.—ADMINISTRATION.—(*c*) (i) The Agricultural and Veterinary Services are doing some good, but not to the extent which is expected of them, looking to the money spent on them.

(ii) Railway and steamer companies have not given any special attention to providing facilities for the agriculturists. Agriculture does not receive any special concession as is the case in some other countries. Concession rates should be given where necessary and rolling stock should be increased.

(iii) Roads are most unsatisfactory. Better and more roads are necessary to market the produce.

(v) Satisfactory on the whole.

QUESTION 5.—FINANCE.—(*a*) Co-operative societies should be helped and rural agricultural banks should be started to do this at a cheap rate of interest. Government should also supply long term credit to cultivators.

(*b*) *Taccavi* should be given at the lowest rate possible; it should be distributed quickly and by a highly placed responsible officer.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (i) Among the main causes of borrowing are, the requirements of agriculture, payment of Government dues which are exceptionally high, payment of interest on monies already borrowed, family and social expenses, failure of crops, etc.

(ii) Money lenders, exacting in many cases; co-operative societies and banks; friends and relations and Government *taccavi*.

(iii) Insufficient earnings from agriculture and want of other occupations which would supplement the income.

(*b*) The Insolvency Act, the Usurious Loans Act are not desirable, as they will destroy the agriculturists' credit. But rural agricultural banks should be established to advance long term loans at a cheap rate of interest to redeem the old debts. Emigration of agricultural labour to British colonies should be arranged for.

(*c*) No.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) Excessive sub-division of holdings should be checked, but sub-division to a certain extent will have to be allowed, looking to the present usages in the country. Steps can, however, be taken to bring about co-operative cultivation of definite tracts.

(*b*) (1) Extreme poverty, want of any other occupation but agriculture, ancient usage and the law of the land.

(2) Want of proper data as to the size of economic holdings in the different parts of the Presidency.

(3) Incapacity of the elder brother to pay the shares of his other brothers or want of faith among brothers, one of whom is to till and the others to share the profits.

(4) Lack of work for those who are thrown out of employment will make them labourers.

(5) Difficulty of distributing *kiari*, garden, and other types of land. Government might help in financing the scheme by opening rural banks, but other difficulties cannot be removed.

(*c*) The village panchayat, elected by the village, should be empowered to deal with village disputes.

Rao Bahadur Bhimbhai R. Naik.

QUESTION 8.—IRRIGATION.—(*a*) It is a standing complaint of Gujarat that it gets very little irrigation in comparison with the vast sums of money spent in irrigation in the Deccan and Sind. This should be removed. The existing tanks, wells, *nullahs* and streams should be put in order and more tanks and wells should be provided wherever they are required.

QUESTION 10.—FERTILISERS.—(*a*) Natural manures are more convenient and effective than artificial fertilisers, but are insufficient. Artificial manures are too costly for dry crops. More use should be made of green manures such as *sann, urid,* &c.

(*c*) Through demonstration farms.

(*f*) Propaganda and the supplying of cheaper fuel from forests, with cheap railway rates.

QUESTION 11.—CROPS.—(*a*) (iv) A great deal of damage is being done by wild animals in this district and requires to be checked. The recommendations made by the committee on the prevention of damages by wild animals and stray cattle should be given effect to.

(*c*) Improvement of cotton, ridge cultivation, wider distance in sowing, improvement of seeds by special selection, the use of copper sulphate against smut, the introduction of grafting, groundnuts, &c. are some of the successes.

QUESTION 12.—CULTIVATION.—(i) Sowing wider apart and ridge cultivation have been taken up. *Sann* as a green manure crop is also becoming popular in Jalalpore, Bardoli and Chorasi talukas of Surat.

QUESTION 14.—IMPLEMENTS.—(*a*) Improved iron ploughs have not been very successful, but people want some better implements provided they can be worked conveniently.

(*b*) Demonstration and propaganda.

QUESTION 15.—VETERINARY.—(*a*) It may preferably be under the Director of Agriculture.

(*b*) (i) Yes. They are working well.

(ii) No, for want of funds.

(iii) Yes.

(*c*) (i) They do.

(ii) There are not sufficient dispensaries to serve their needs.

(*d*) Popular ignorance. Legislation may be introduced after educating popular opinion.

(*f*) Fees in case of highly infectious diseases are not desirable. Many ignorant cultivators refrain from taking advantage of the serum and leave their valuable animals to the cure of nature.

(*g*) Yes.

(*h*) (ii) Special research should be directed to improving the local drugs applied by the cultivators. These drugs would then be very popular, and would be widely used by them.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) (i) Improvement is necessary.

(ii) This is necessary.

(iii) Much improvement is required.

(*b*) (i) Yes.

(ii) Yes.

(iii) Yes.

(iv) Yes.

(*c*) April, May and June—12 weeks. The cattle begin to improve in about six weeks after the monsoon has started.

(*d*) Common pasture should be increased.

(*e*) Propaganda and demonstration.

QUESTION 17.—AGRICULTPRAL INDUSTRIES.—(*a*) The cultivator has very little work for about four months in the year and during the remaining

eight months he does not work for more than four or five hours a day on an average. Practically nothing is done by some of them in the slack season.

(*b*) Spinning and weaving should be useful.

(*c*) None, except ignorance and want of facilities. Religious scruples in some cases.

(*d*) Yes.

(*e*) Yes.

(*f*) Yes.

(*h*) Education and propaganda.

QUESTION 18.—AGRICULTURAL LABOUR.—(*a*) (i) The organisation of labour bureaux and settlements.

(*b*) There is shortage of agricultural labour owing to the expansion of railways and urban industries. Importation of labour from outside is necessary.

QUESTION 19.—FORESTS.—(*a*) No. The forest area should be left open as grazing ground as far as possible.

(*b*) Utilisation of more waste lands where firewood and fodder can be grown is necessary.

(*f*) No.

QUESTION 20.—MARKETING.—(*a*) The existing arrangements are unsatisfactory on account of want of good means of transportation of the produce to the market centres and the exchange policy of Government.

(*b*) In the Surat district the produce is carried to different markets, where it is purchased by merchants. Food-stuffs are distributed to the consumers and cotton is handed over to the export merchants. The margin of profit made by the merchant varies between 5 and 25 per cent.

(*d*) Yes.

QUESTION 21.—TARIFFS AND SEA FREIGHTS.—Protective duties should be levied on imported agricultural produce which competes with the local article.

Sea freights should be favourable to exports from Europe.

QUESTION 22.—CO-OPERATION.—(*a*) (i) Government should subsidise the co-operative movement and should do more propaganda work.

(*b*) All these societies are useful and require to be encouraged.

(*c*) No. I am against compulsion. Public opinion should be cultivated.

(d) Yes, to a certain extent.

QUESTION 23.—GENERAL EDUCATION.—(*a*) Secondary and elementary education should have an agricultural bias. The present systems are literary and have neglected agriculture which is the greatest industry of India.

(*b*) (i) Elementary schools with an agricultural bias, vocational schools, continuation classes and the provision of cheap agricultural literature are necessary.

(iii) Young children are required to help their parents and the education given is not interesting. There is stagnation among the lower classes for want of sufficient teachers.

QUESTION 24.—ATTRACTING CAPITAL.—(*a*) The present land revenue system is so uncertain and the pitch of assessment so high that no man of capital and enterprise will take to agriculture, so long as better investments and fields of work are available. Again, the uncertainty of rains and harvest, the dearth of agricultural labour, the ignorance in regard to agriculture and the disfavour with which agriculture is looked upon by the people, are also discouraging.

(*b*) The uncertain tenure, periodical assessments, the question of ownership, poverty and illiteracy and want of protection against the vagaries of season discourage owners of agricultural land from carrying out improvements.

Rao Bahadur Bhimbhai R. Naik.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(*a*) Expansion of education and the provision of such amenities of life as clubs, libraries, playgrounds, good roads, &c., and good sanitary conditions are necessary.

(*b*) Yes. The investigating committee should have a majority of non-officials.

(*c*) The agriculturist is illiterate, poor and helpless.

QUESTION 26.—STATISTICS.—All this is necessary, but to command popular confidence non-official representatives of the people should be invited to co-operate with Government agencies.

Oral Evidence.

50,107. *The Chairman*: Rao Bahadur Bhimbhai Naik, you are President of the District Local Board, Surat?—Yes.

50,108. You are a member of the Indian Central Cotton Committee?—Yes.

50,109. Do you own or farm land?—Yes.

50,110. Do you farm it yourself?—At present I am not doing it; I have left farming for the last two years.

50,111. But you have had experience as a practical agriculturist?—Yes; I am an agriculturist, born and bred.

50,112. Have you had experience of agriculture in countries other than India?—I have got some experience of South Africa.

50,113. Have you practical experience of cultivation in South Africa?—I have not practical experience, but I have seen how cultivation is carried on in Rhodesia, one of the South African colonies.

50,114. I have to ask you one or two questions about your District Local Board. Are the finances of that body sufficient to enable it to discharge its duties?—Not sufficient.

50,115. How do you account for that?—We have not sufficient funds to meet the requirements of the rural areas. The construction of roads, provision of medical relief, veterinary relief, all these are duties which are assigned to the local bodies; and we have not sufficient funds to carry out those duties. Our income has remained stationary since 1884, but our obligations have been increased a dozen-fold.

50,116. Is it within the power of the Board to increase its revenues?—Yes; we have been empowered to impose certain taxes, but the schedule of taxes which have been assigned to Local Boards is such that the revenue realised from the taxes will not be sufficient to cover the expenses of collection.

50,117. Do you say that the taxable resources of the local bodies have been completely developed and are not capable of further development?—Yes. It would not pay the collection charges to levy new taxes assigned to Local Boards.

50,118. What subjects interest the members of the Local Board?—Primary education, communications, medical relief and water supply; these are the principal subjects.

50,119. Is there much public interest in the matter of education?—No doubt the public do take interest in education.

50,120. And the opinion of the Local Board reflects the pressure of public opinion in that matter, I suppose?—Yes; it does.

50,121. How about veterinary matters? Do they interest the cultivators?—They do take advantage of the existing veterinary relief; but the pro-

vision is not sufficient. I think Government have not done much in that matter.

50,122. Veterinary relief is not one of the obligatory duties of the Local Boards?—No. It has been assigned to the Local Board, but the Local Boards are not able to cope with the requirements of the district.

50,123. Is it the position, in the Presidency, that the local authority maintains the dispensary, the Provincial Government makes a grant to the local authority, and the Veterinary Department controls the staff?—Yes.

50,124. Is that a satisfactory arrangement in your view?—No.

50,125. What change would you suggest?—I would hand over the department totally to the Provincial Government.

50,126. Would you take it completely away from the local body?—Yes, or hand it over ultimately to the management of the District Local Board altogether. There should be no dual control. If it were handed over to the local body, there should be more grants. Government are willing to hand it over to the local body, but they do not want to give more money.

50,127. Is there a disinclination on the part of the members of the local authority to impose further taxation, because of the unpopularity which is likely to be created?—No. Members of the local authority are quite prepared to shoulder their responsibility. They are willing, but they are unable to impose further taxation, as the people are unable to bear any further burden of taxation.

50,128. Have you an Education Committee?—No. We have not yet taken over the management of primary education.

50,129. That is optional?—It is optional. There is nothing in the Act to force us to do so.

50,130. And you have not yet taken over the management?—No, because we cannot meet our present obligations. On account of the high pitch of assessments and taxes that has been reached in my district, there is no scope left open for further taxation.

50,131. *Professor Gangulee*: You have not taken advantage of the Compulsory Primary Education Act?—It has not been taken advantage of for some other reasons also. There are certain disputes between the Local Board and the Government about the grants, and we might take it over shortly. At present the management of education in my district is with the Government.

50,132. *The Chairman*: You are also a member of the Indian Central Cotton Committee?—Yes.

50,133. Are you satisfied, broadly speaking, with the work that that body is doing?—As far as the work which has been done till now is concerned, there is reason to be satisfied.

50,134. The Committee has been doing good work?—Yes; it is still in its initial stages.

50,135. Do you attend the meetings?—I do.

50,136. And you think the constitution of the Committee and the Sub-Committees is satisfactory?—It is satisfactory, but I would suggest election instead of nomination. The members are at present nominated by Government.

50,137. Who, do you suggest, should elect?—The agricultural classes. The members representing the different interests, trades and agriculture, are at present nominated by Government.

50,138. In what capacity are you a member?—I am a representative of the agriculturists of this Presidency, excepting Sind.

50,139. You do not actually grow cotton yourself?—I used to grow it, but for the last two years I am not doing so.

50,140. Speaking quite impersonally, do you regard it as satisfactory that the interests of growers should be in the hands of one who is not now a grower?—Whether a man cultivates his land himself or whether he gets it cultivated by others does not make any difference, because in any case he is equally interested.

50,141. Are you taking your rent on the share basis?—On the cash basis.

50,142. Let us look at the problem of marketing, in which the Indian Central Cotton Committee interests itself. Apart from your public spirit and interest in the welfare of your cultivators, have you any financial stake in the successful marketing of the produce of your own tenants?—No. I never lend money to them.

50,143. I do not mean that. If you were a selfish man and were not interested in the welfare of your tenants, it would not make any difference to you, in terms of cash, whether they marketed it well or badly?—It does not.

50,144. Have you any actual cultivators on the Committee?—I do not know. All the members who are there represent, like myself, the growers.

50,145. You do not think there are any representatives of the actual tillers of the soil?—I do not know.

50,146. Do you think that there are indications that the fertility of the soil is declining in this Presidency?—Yes.

50,147. Could you give us your reasons for taking that view?—It is quite natural that, as the land becomes older and older, it should deteriorate by constant cultivation unless it is properly looked after, well maintained and cultivated. Old land deteriorates; they are not leaving any fallow land now.

50,148. The practice of fallowing is declining?—Yes. Every year all the land is cultivated.

50,149. It is a matter rather of general impression than of exact information?—It is a fact. I am not giving you a general impression. I am saying it from my own experience. A field which used to give six maunds of cotton 12 years ago now gives only four maunds.

50,150. If you were cultivating yourself, do you think you could arrest that?—I could do one thing. I could always keep up the fertility by manuring properly, by interculturing, and by adopting means for drainage, so that the land should not deteriorate any further. I could keep up the land.

50,151. Your tenants do not do that?—No.

50,152. How do you account for the fact that they do not do that?—They have not got sufficient money.

50,153. You think it is an economic difficulty?—Yes. That is the root cause at the bottom of everything. To remove any misunderstanding, I should like to say that I am an Inamdar, so that I do not exact rents from my tenants according to my requirements or according to my wishes. The lands are assessed by Government. My tenants are such that their assessment has been fixed by Government, and I have to recover the rents. I am the Inamdar of the villages.

50,154. *Sir Chunilal Mehta*: You fix the rents?—No. Government does it.

50,155. Government fixes the assessment?—There is no rent. I am the Inamdar of the village. In addition to that, I have other land, a few acres, which I cultivate myself.

50,156. *The Chairman*: The principle with which I am concerned is the fact that you, yourself, are not financially interested in the agricultural operations of the tenants. It does not make any difference to you personally whether they buy or sell well or badly?—It does. If they do not sell well, I will not get the assessment from them. If it makes a difference to Government, why should it not in my case? Government have to collect the rent from the ryots, and I have to do the same. If they are unable to pay the rent, I will not get it.

50,157. Provided they can meet the assessment and the rent, their interests and yours are not connected in any other way?—They are not connected in any other way. It is a moral obligation on me to see that my tenants are improving.

50,158. I am concerned with the point as to whether the actual tillers' interests could be better looked after on the Indian Central Cotton Committee by one who tills the soil himself?—I am also a cultivator. Besides inam land, I have my own land.

50,159. You are cultivating yourself?—Yes.

50,160. How much land do you cultivate yourself?—It is about 100 bighas.

50,161. By what means do you cultivate it?—By means of *halis*, that is servants; it is paid labour.

50,162. On page 340, in answer to our Question 18, Agricultural Labour, you say "There is shortage of agricultural labour owing to expansion of railways and other urban industries. Importation of labour from outside is necessary." Where do you suggest that that labour should come from?—As far as Gujarat is concerned, from Kathiawar. Gujarat can get labour from Kathiawar, if a proper organisation is established. At present they are coming, but not in an organised form.

50,163. Do you find that there is a certain amount of labour coming into your district at the time when cotton is being picked?—Yes.

50,164. Where does that come from?—From Kathiawar.

50,165. But it is not enough?—It is not enough, and then, as soon as the rains start, they go away. We want them to settle here to meet the permanent shortage of labour.

50,166. You give us some views about marketing in answer to our Question 20. Where do you market your own cotton?—There are ginning factories situated throughout the whole district. I carry my cotton to the nearest ginning factory, about four to five miles away.

50,167. You carry it straight to the factory?—Yes.

50,168. You do not sell in the local markets?—There are no local markets. The owners of ginning factories send their *dalals* (brokers) to different villages, and they make contracts for so many *bhars* at so many rupees per *bhar* of unginned cotton; they make a contract with the agriculturists that the agriculturists should deliver so much unginned cotton to the factories concerned.

50,169. That is the practice in your district?—Yes.

50,170. You yourself carry your own cotton direct to the ginning factory?—Yes All other agriculturists do the same, not myself alone; that is the practice.

50,171. They all carry cotton to the ginning factories?—Yes.

50,172. In any case, is it collected by buyers from the cultivator?—No.

50,173. Are there any cotton sale societies?—There are about eight or nine.

50,174. Can you give us your views about them?—There is one co-operative sale society, recently started, which is doing very good work; it is the Sonsak Co-operative Cotton Sale Society. We encourage such societies.

50,175. *Dr. Hyder*: On page 340, speaking about tariffs and sea freights, you say: " protective duties should be levied on the imported agricultural produce which will compete with the local article?—I sometimes read in newspapers that Australian wheat has been imported into India. I do not know much about it.

50,176. Do you know why that is imported?—It may be for trade purposes and it should be discouraged by provincial import duties.

50,177. What crops do you grow?—*Juar* and cotton.

50,178. Suppose there is a famine in Gujarat, would you like to prohibit the import of *juar*?—No.

50,179. Similarly in the case of wheat, would you prevent its import?—I would not, but if it is going to be a regular trade every year to compete with wheat of this country, in that case I would.

50,180. Is this the case?—I do not know, I read very often that Australian wheat is being imported.

50,181. On page 340, what is the difficulty about the question of ownership you refer to?—I respectfully think that this Commission will not be of any use if this question is not tackled successfully, not only the ownership question but the whole land tenure question.

50,182. I am not going to question you about land tenure?—It is there, I have stated it.

50,183. Will you only stick to the question of ownership?—In this Presidency we have the *ryotwari* system and Government claim ownership of land.

50,184. What about the agriculturists?—They are the ryots, tenants of Government.

50,185. With regard to the *inamdari* villages which you have, you have proprietary rights in addition to what the Government forgoes in your favour, that is to say, land revenue?—No.

50,186. I mean, what you draw from these *inamdari* villages is not only the Government land revenue assessment but also the profits of part ownership which are due to you on account of your being a part proprietor?—Yes.

50,187. Government perhaps fixes its share, the share which it forgoes in your favour, but there is some other share which comes to you. Who fixes that?—That depends upon the terms of the title. There are different titles. In several cases the *inamdar* has an absolute title; and he fixes everything; in some cases e.g. in surveyed villages Government fix everything and *inamdars* cannot do anything except collect the revenue. That depends upon the conditions or terms of the titles. All *inam* villages are not of one title, there are different sorts of titles.

50,188. You draw the share which Government forgoes?—Yes.

50,189. Is that fixed?—Yes. There are periodical revisions. I am talking of my own *inam* villages which are surveyed and assessed *sharakati* villages.

50,190. At every revision not only the Government share is revised but also the profits of ownership, rents?—Yes, that is assessment; assessment means rent. In *sharakti inam* villages there is no other profit over and above the share of the fixed land revenue which Government forgoes i.e. there are no rents which are to be fixed by the *inamdar* for him to levy from the cultivators as in unsurveyed and unassessed *inam* villages where the *inamdar* has to pay to Government what is called fixed *judi* or *salami* and where he fixes rents to be recovered from the cultivators.

50,191. *Sir Chunilal Mehta*: Did the Central Cotton Committee make an estimate of the increased profits to the cultivators in the Surat district?—It was not the Central Cotton Committee but the Director of Agriculture who submitted a report that the introduction of a particular kind of seed in some parts of Gujarat has benefitted Gujarat to some extent.

50,193. He made a report to the Central Cotton Committee?—Yes.

50,193. What did the Committee say?—They decided that uniform seed of 1027 should be introduced, at least in the whole of the Surat district.

50,194. Did the Central Cotton Committee send a memorandum to the Commission that an estimate was made by a non-official of the increased profits to the cultivator?—Yes.

50,195. What was that profit?—In some parts of the Surat district they get about 15 rupees for a *khandi* and five rupees for a *bhar* more for 1027 than for the other cotton grown from other seeds.

50,196. What was the total profit in that district as calculated by the Central Cotton Committee?—I think it was about 15 to 20 lakhs of rupees.

50,197. 30 lakhs?—May be, I do not know the exact figure.

50,198. Please turn to page 338 of your memorandum, where you are talking about fragmentation of holdings. In (*a*) you say " steps can, however, be taken to bring about co-operative cultivation of definite tracts." Has that been done anywhere?—It was done only in one instance in my taluka, at a village in Kosad. Unfortunately that man died and now it is left alone. That gentleman had collected about 300 bighas of land of different owners on a co-operative basis and he made experiments, but unfortunately he died.

50,199. It has not been done?—No.

50,200. Are you aware that a similar thing was tried in the Ahmednagar district by the Co-operative as well as by the Agricultural Department?—I have heard about it, but I do not know the results.

50,201. It did not succeed there either?—I do not know.

50,202. Then in (3) on the same page you say " want of faith among brothers, one of whom is to till and the others to share the profits." If that happen among brothers, is it not likely to happen in co-operative cultivation?—It will happen like that.

50,203. That is not really much of a remedy?—It is simply a trial, that is all.

50,204. *The Raja of Parlakimedi*: How many years have you been President of the District Local Board?—For two and a half years.

50,205. Before that?—I was Vice-President.

50,206. Since what date has the deterioration of roads begun to come about?—Since I know the condition of the roads, they were never better.

50,207. Even during your vice-presidentship?—Yes, even during the presidentship of Government officials, such as Collectors.

50,208. Is it peculiar to your district?—No, it is so all over the Division. We have black soil which requires more money than the soil in the Deccan and other parts of the Presidency.

50,209. Also I suppose a scarcity of metal?—Yes, in some parts.

50,210. Are there any motor services in your part?—They have just commenced; since about 18 months some motor services have started.

50,211. Are you making any special arrangements for the motor services?—The District Local Board is not making any arrangements at all.

50,212. The roads upon which these buses have to travel are for the convenience of the public?—Yes.

50,213. Are the roads being maintained properly?—Ordinarily they are maintained, because the income from motor cars, the license fees, go to Government and not to Local Boards. Even the licenses are not granted by the President of the Local Board but by the District Magistrate. We have got no say. On the other hand these roads are spoiled by the motor services.

50,214. The revenue derived from motor services does not go to the Local Board?—No. If I do not want the motor services to be run on my roads, I cannot stop them.

50215. What about the tyres they are making use of? Do you allow pneumatic tyres to be used on your roads?—Unfortunately I have no say in the matter and, much as I would like to interfere, I cannot; I am powerless.

50,216. Now, to go back to the *inam* system: Do you hold your *inam* villages merely for the honour of being an *inamdar* or do you derive any revenue from those villages?—I do get that part of revenue from those villages which Government forgoes.

50,217. So you are interested in the welfare of the tenants?—I am.

50,218. And your income increases as their prosperity increases?—Yes, if by increase in income is meant increase in assessment.

50,219. *Sir James MacKenna*: During your residence in South Africa did you have occasion to study the local agricultural conditions?—Yes.

50,220. How do they compare with the conditions in your part of the country?—They differ tremendously. In South Africa they have freehold title; the tenure is quite different from that obtaining here. There, Government officers cannot enter the field of an agriculturist without his permission, while in India the owner cannot go into his field without the permission of the Revenue Member. That is the difference. By this I mean Government here claims ownership of the land.

50,221. Are they large holders or small?—Large.

50,222. Who are the owners? Do they correspond to our small peasants?—They are mostly Dutch settlers.

50,223. More or less like the planters here?—No; ordinary farmers.

50,224. Big zamindars?—Yes, if zamindars mean farmers with large holdings. There is no land revenue assessment in that country, as there is here.

50,225. On the other hand there is not the small peasant?—No, there are no small peasants.

50,226. *Professor Gangulee*: Their problem is quite different.

50,227. *Sir James MacKenna*: Large capitalists are going in for agriculture?—Of course, it is a new country and people are settling there. It is not only the capitalists that are going in for agriculture; most of the Dutch farmers are very poor; they take farms even so small as two or three acres; and there are some Indians, too, who own three to five acres under freehold title.

50,228. Do you know any Indians, who started in that way with two to five acres, who have expanded to large holders?—I do.

50,229. And have become very large landholders ultimately?—Yes; with farms running up to 200 acres.

50,230. *Mr. Kamat*: You have said that there is a complaint in Gujarat that as much has not been done for irrigation canals as in the Deccan and in Sind. The fact may be correct, but have you looked into the causes of that? The Irrigation Commission has said that the possibilities of having canals on the Gujarat rivers are rather scanty and there are difficulties from the irrigation point of view. Do you know that?—I do not know that, but if that is a fact there can be no difficulty in repairing tanks and wells.

50,231. It is right, so far as Government canals are concerned?—I do not agree there. The other day a Government member of the Bombay Legislative Council said that there was a project under contemplation several years ago to have a canal from the River Tapti.

50,232. If there are possibilities, in your opinion, as against the opinion of the Irrigation Commission, it is for the people to bring those possibilities to the notice of Government?—Yes.

50,233. I find from the figures supplied to us by Government that whereas in the Deccan, during the last ten years, irrigation from wells has gone up from 287,000 acres to 370,000 acres, an addition of, say, a lakh of acres, in Gujarat irrigation from wells has gone down during the same period. Can you give me any possible reason why the people in Gujarat are not very keen on extending well irrigation?—Poverty is one principal cause and another is the sub-soil water tax. In the old days we irrigated land, but now sugarcane and *bagayat* cultivation have been given up and all are going in for dry crops because they have not got sufficient money to go in for irrigated cultivation.

50234. If the sub-soil water tax is coming in the way of the extension of well irrigation, have the people brought this sufficiently to the notice of the authorities concerned?—Many times; right up till now we have been doing so.

50,235. You are an *inamdar*. Are there any specific grievances, disabilities, if I may say so, under which the *inamdars* as a class labour, and under which they are unable to improve their villages? Can you describe these difficulties?—Practically the *inamdars* have got no hand in the administration of their villages; everything is dictated by Government; the *inamdars* simply collect their revenues.

50,236. Do you mean to say you have no power to sink wells or to repair tanks?—Sinking of wells we can do, but other things we cannot.

50,237. What are those things which you cannot do as an *inamdar*?—Suppose I go and sink wells in my village or put up some irrigation work, then, of course, I have to go to Government to get the assessment revised; naturally the *inamdar* would not like to do these things at his own expense without any return.

50,238. That is to say, if you are prepared to sink a well or repair a tank, you have to obtain Government's permission?—No, I can do it without obtaining permission; but if I want to get something in return I must have permission. Some *inamdars* have absolute title and some have not. I cannot make a farthing enhancement without the permission of the Government, and not only that, but it is Government that declares this enhancement.

50,239. This is standing in the way of considerable improvements in certain villages assigned to *inamdars*?—Yes.

50,240. *Dewan Bahadur Malji*:. In your *inam* villages are the holdings inalienable tenants' holdings?—Yes.

50,241. They practically have occupancy rights?—Yes, they have.

50,242. If these occupants are helped, is there any objection to their sinking wells?—No; they are doing that.

50,243. If, therefore, irrigation by wells were encouraged, a good deal could be done through the agency of these occupants?—Yes.

50,244. With regard to irrigation, the sinking of wells is perhaps the only alternative left in Gujarat?—Wells and tanks and *bunds* from rivers.

50,245. You said that the whole of the business of selling cotton was being done in the ginning factories?—Yes.

50,246. Do you think a good deal more could be saved to the agriculturist if separate cotton markets were set up?—There is a difference of opinion with regard to that; as far as my district is concerned, we have no grievance against the present system; we ought to form more co-operative sale societies. The investigations of the Indian Central Cotton Committee led them to think that Khandesh and North Gujarat were the places where such markets were necessary, but not in South Gujarat.

50,247. Where there are no cotton sale societies in your district, do you not think the agriculturist is exploited to a degree by the middleman?—I do not think so.

50,248. *The Chairman*: Are you interested in marketing cotton at all, apart from your own cotton?—No.

50,249. You take no part in that?—No. May I make a statement?

Certainly?—I thank the Government for having appointed this Commission. Agriculturists are suffering from the chronic disease of indebtedness; they are very heavily indebted. I think agricultural land banks should be opened and the old debts should be redeemed by advancing money at cheap rates of interest. I am not concerned with whether you convert these co-operative banks into agricultural banks or start new agricultural banks. I simply say this, that unless and until you redeem the old debts and free the agriculturists of this Presidency, or of all India for the matter of that, from their present debts, no improvement can be made, and whatever suggestons you make will remain on paper and the labour and expense of this Commission will bear no fruit. Government is the superior partner in the agricultural industry, but Government has done practically nothing for the agriculturists. If Government has cared for anything, it has been the collection of their revenues; the first anxiety of Government at the beginning of the year is simply to collect the revenues and to look up the boundary marks of the fields; beyond that, Government has done nothing in this country for the agriculturists. The facts and figures I am about to give are not my own, but are from Government records. I come from a district where 40 to 50 per cent. of the net rents are taken by Government as assessment. Yesterday I had a discussion with one of the highest revenue officials of this Presidency about a taluka which is considered by Government officers to be one of the most prosperous in the Presidency; though they are at present paying 40 per cent. assessment of the rent, Government have decided to increase it by 33 per cent. I pointed out that that taluka is indebted to the extent of one crore of rupees. The highest figures given by the Settlement Officer give the value of the crops as being about 29 lakhs, and, deducting the assessment, the cost of production and the interest on the debt, there was a deficit of 11 lakhs. That is considered to be one of the most prosperous agricultural tracts in the whole of Gujarat. What is the average holding? It is 6·9 acres. If you ask what is the economic holding for a family of four persons: the husband, wife and two children, at least with dry crops it is necessary to have 20 to 25 acres. I am not speaking of the less prosperous talukas; Gujarat is considered to be the most prosperous tract as far as the agriculturist is concerned, and in Surat, in one of the most prosperous talukas in all India, the average holding is 6·9 acres. I contend that the pitch of assessment is very high. That state of things can only be remedied by advancing long term loans to the agriculturists to redeem debts; it is also necessary to advance loans for agricultural operations and implements. Sometimes, people cry out against the *sowcars*, and say that they are charging exorbitant rates of interest; it may be so, but they are a help, not only to the agriculturist in times of stress, but they have helped Government a great deal in collection of revenue; had it not been for the *sowcars* Government would not have collected the revenue all these years.

50,250. *Mr. Calvert*: Which is the higher in that taluka, the revenue demanded by Government, or the interest demanded by the *sowcars*?—Government takes away everything; the *sowcars* come in afterwards. Government is the major partner; it is just as I told you, that in a taluka which is considered one of the most prosperous agricultural talukas, 50 per cent. of the rent is taken by Government.

50,251. I repeat: which is the greater in that taluka, the revenue demanded by Government or the interest demanded by the *sowcars*?—The interest demanded by the *sowcars*.

50,252. That is bigger than the Government revenue?—Yes, in certain talukas, and in other talukas it is the other way round; there cannot be uniformity in that matter. Most of this debt was incurred not for the agriculturists themselves, not for agricultural operations, but to pay Government dues.

50,253. You are quite certain about that?—Yes.

50,254. Do you know of any case in which an increase in the assessment of revenue has been in a greater proportion than the rise in prices since the previous assessment?—I cannot follow you. What do you mean by a rise in prices? Are you speaking of a year of abnormal prices?

50,255. Take the average prices of 30 years ago and the average prices of to-day; do you know of any instance where the new assessment is higher than the previous assessment by more than the rise in prices?—It may not be, but then will you take the comparative rise in the cost of production and cost of living.

50,256. Would you then agree that Government, in reviewing its assessments, never takes more than is justified by the mere rise of prices?—No, I do not agree with that; it always takes more than is justified.

50,257. Have you ever known a case in which Government, on a revision of settlement, takes a higher assessment per acre than is justified by the rise of prices?—I do not agree that, in fixing the assessment, only the prices of commodities should be taken as the principal factor; there are several other factors to be taken into consideration as well.

50,258. That is not the question I asked you; the question I asked you was: do you know a single instance in which Government in reviewing assessment has increased the assessment by a higher percentage than the rise in prices?—Yes, just now I told you the case of Bardoli.

50,259. Do you say the prices in Bardoli are not 33 per cent. higher to-day than they were 30 years ago?—The prices of commodities may be. I go on the profit of agriculture.

50,260. I am not speaking of profits; I am speaking of prices?—That may be so; it may be 33 per cent. higher than it was in 1897.

50,261. Will you accept it then that it is Government's invariable policy never to raise the assessment to an amount equal to the rise of prices?—I do not know on what policy they fix the assessment.

50,262. Will you accept this, that the progressive assessments on any area are progressively less, smaller and smaller, in terms of actual produce?—No, produce has not increased.

50,263. The man has to sell less and less produce per acre to pay the revenue per acre?—Again you come to the prices of commodities?

50,264. Yes? Do you accept that?—That may be; I do not know.

50,265-6. The revenue demand is getting lighter and lighter; do you think that is a cause of the increased debt?—Yes, I consider that enhanced revenue is one of the principal causes of that increase.

50,267. The recurring reduction in the land revenue is one of the causes of debt?—There is no reduction in the land revenue; in fact the revenue has never been reduced, it has rather been increased.

50,268. Have you ever read through any assessment reports?—Yes, one or two.

50,269. Did you not find that the actual increase, in revenue, was less than the increase in prices?—That may be, but I certainly do not accept the theory at all that revenue should be based on prices, because the effect on prices may be temporary. If you exclude the prices of abnormal years, then the rise in prices, considered along with other factors such as cost of cultivation, etc., might justify the increase in revenue; I would accept that theory.

50,270. In order to get rid of this debt, would you favour popularising insolvency proceedings?—No; the credit of the agriculturists has already been taken away and this will worsen their position.

50,271. If the credit of the agriculturist has been taken away, then how has he got into debt?—Before the Deccan Agriculturists Relief Act came into operation an agriculturist was generally not obliged to mortgage his land for a sum of money; he used to get the money he required on a one-anna or two-anna promissory note. But now, after the passing of the Deccan Agriculturists Relief Act, so many sale deeds are passed in favour of the *sowcars*. Then you went to the bazaar and got, say, Rs.1,000 on personal credit piece of paper and now you have to give something on mortgage, which certainly means taking away the credit.

50,272. Is the debt of those people now greater than their credit?—They have got no credit.

50,273. Then how have they got debts?—They have to give their lands on security and they get the money they want. When I say credit I mean that they used to give a promissory note and take the money, whereas now they give the security of the land. They pass the sale deeds of the land in favour of the *sowcars* and then they obtain the necessary amount in return.

50,274. They have still got credit?—Very few.

50,275. Do you think that in many cases the debts now exceed their credit?—In many cases, practically, that is so.

50,276. Then why do you not allow insolvency proceedings to take place?—When I say that they have lost their credit I mean to say that they are not getting money simply on their own personal security; I do not mean to say that they do not get money at all. What I say is that these agriculturists used to get the money they wanted on promissory notes but now, after the passing of this Act, namely the Deccan Agriculturists Relief Act, they are not getting the money on personal security, but they have got to produce land securities.

50,277. *Professor Gangulee*: Would you agree that increased debt means increased credit?—No.

50,278. *Mr. Calvert*: Have you devoted much time to the study of the question of rural debt throughout the world?—No.

50,279. *Sir Chunilal Mehta*: Did I understand you to say that in fixing the assessments, Government take the prices of abnormal years, like the war years, into calculation?—Yes.

50,280. Can you show any instance where that is the case?—Yes, I have got the papers with me; I can send them to you.

50,281. I shall be very grateful if you will send me the papers?—Yes, I will.

50,282. *Professor Gangulee*: In your *taluka* do you find that there has been a rise in wages?—Yes.

(The witness withdrew.)

Messrs. KIRLOSKAR BROTHERS, Ltd.

MEMORANDUM.

In order to enable the Commission to gauge correctly the position we hold as manufacturers of agricultural implements at present and to enable them to get an idea of the extent of our works and the business we have so far done it will not be out of place, we trust, if we go hurriedly over the essential features of the history of our concern and then enumerate the difficulties encountered by us in manufacturing as well as distributing the agricultural implements and the help we expect to receive at the hands of the Government. We shall also try our best to show how far we have been able to introduce the use of improved agricultural implements in India.

Without therefore commencing the history of the concern from the very beginning, we may here inform the members of the Commission that the first iron plough was manufactured by Mr. L. K. Kirloskar in the year 1906 and gradually we increased our capacity to manufacture ploughs to meet the increased demand for these articles.

Till the year 1910, the factory was situated at Belgaum, but in that year, the Belgaum Municipality gave Mr. Kirloskar notice to vacate his place and as Mr. Kirloskar then had no resources to fall back upon, he had to seek the help of somebody in obtaining land and money required for re-establishing the concern somewhere. It was at this time that the present Chief of Aundh came to his rescue and offered him land and money if he established his concern within the jurisdiction of the State. For want of help from any other quarters Mr. Kirloskar had no other alternative but to accept the offer and he had to establish his concern at the present place, in spite of the many drawbacks the place has got as a manufacturing centre of agricultural implements. It will thus be seen that the initial disadvantages could not be overcome by Mr. L. K. Kirloskar and therefore he had to make the best of the opportunity offered to him.

However, the place had one advantage namely that it was a very ripe field for the introduction of improved implements and the ploughs began to be popular with the local agriculturists and the concern also began to grow till, in the year 1920, it was found that with the limited capital at the disposal of Mr. L. K. Kirloskar it was not possible to meet the demand for improved implements and it was therefore decided, in the year 1920, to turn the concern originally owned by Mr. L. K. Kirloskar into a limited liability company with a capital of Rs.12,00,000.

The factory is at present employing 500 men on an average and is in a position to manufacture one lakh of ploughs of a given type in a year if so required.

Among the superior staff employed at present there are men having long experience in the manufacture of agricultural implements and also there are some men who have been educated at foreign Universities.

The above paragraphs sufficiently give an idea of our concern and the resources it has and it also gives an idea of the magnitude of our concern and its potentialities.

Turning now our attention to the difficulties in the manufacture of agricultural implements, we have to impress upon the members of the Commission that if anything is to be made very successful in India, the prices of products must be maintained so low as to be within easy reach of farmers. The first difficulty that comes in the way of manufacturing cheap implements is the duty on steel, which is very heavy in our opinion. We are not in any way against levying protective duties on steel, but the manufacturers of agricultural implements should be given a preference and all raw material imported by the Indian manufacturers of agricultural implements should be exempted from duty. This will considerably help us in lowering the prices of our implements.

The second difficulty with regard to the manufacture of agricultural implements is the want of a regular supply of raw materials. Half the

raw material required by us is imported from Bombay and owing to the uncertain time taken by railways to transport goods, it is absolutely impossible to depend upon railways for any steady supply of raw material and consequently at least three months supplies are required to be held by us in stock, thus locking up a good deal of capital. Added to this, there are also high freights on coke, coal steel bars, open sand and moulding sand. Just to give an idea of the inequality as between freight charges, it may be stated here that one ton of M.S. bars can be brought into Bombay from Hamburg, a distance of over 5,000 miles, at 14 shillings per ton, *i.e.*, at the present rate of exchange at Rs.9 per ton, and the same bars cost Rs.18 per ton from Bombay to Kirloskarvadi, a distance only of 250 miles.

We therefore think that if cheap and efficient implements are to be produced, then facilities for the conveyance of raw material required for the manufacture of agricultural implements must be given; also, to ensure a steady and regular supply of raw material, railways must be bound to carry the material within a stipulated period, holding them responsible in damages in case unreasonable delays take place. Owing to the present unreasonable delays that generally occur, it is absolutely impossible to lodge the claims with the railway authorities within six months from the issue of the railway receipt. If the present state of things is to be continued, then at least the time limit of lodging claims should be extended to a year instead of the present limit of six months as per Section 77 of the Railway Act.

Thirdly, there are certain articles such as packing wood, etc. which can be had in plenty in the forests of India and the same should be supplied to the manufacturers of agricultural implements at comparatively cheaper rates.

The fourth difficulty with regard to the manufacture of agricultural implements is the want of proper designs suitable to the different soils of India. The ploughs that we are at present manufacturing are mainly those suggested by the Department of Agriculture in India, but we think as the Department is very poorly manned so far as the agricultural engineering section is concerned. The implements suggested by the department are not always the best implements exactly suitable for the different soils of India. What we therefore suggest is that there should be a Department of Agricultural Engineers at every District place in India and it should be their duty to investigate the local conditions and also the different soils and then design such implements as would be most useful to the cultivators of the District and if they are approved by the cultivators then such designs should be handed over to the Indian manufacturers for manufacturing them on a large scale, guaranteeing in the initial stages certain minimum sales. It should however be noted that while handing over the designs to the manufacturing firms, care should be taken to see that firms having rupee capital and completely manned by Indians should have first chance and, in case they refuse to handle the particular line, then firms with rupee capital but partly manned by foreigners should be given a preference and in case of their refusal, then the foreign firms established in India should be given a chance. We take the liberty of emphasising once more that our firm is at present quite capable of manufacturing anything from an engine to an ordinary plough if a sufficient demand is created and in no case the interest of Indian manufacturers be overlooked.

Lastly, the sale of these ploughs depends entirely on the rains and therefore the business has got a seasonal character and many times in famine years the demand for these implements is very limited and consequently a large amount of capital is locked up. In order, therefore, to ease the situation, the central purchasing body of the Government of India should guarantee to purchase a minimum number of implements each year, which

will ensure the manufacturers a steady demand and will also considerably help to reduce the prices.

With the competent staff employed by us, it was thought by us that the system of mass production should be introduced in our works, but the demand for the implements could not be created as fast as the implements were manufactured and therefore we had to divert our attention to other kinds of products. We attach herewith a graph* showing the sales of our implements from the year 1912 till the middle of the year 1926. It will be seen that in the last fifteen years we have not been able to sell more than 120,000 ploughs. Considering the 30 million wooden ploughs that are in use in India, it is evident that our efforts in selling the ploughs have not met with that success which we anticipated and therefore we suggest the following remedies for the difficulties that we are encountering in the distribution of the implements.

The main difficulties with regard to the sale of agricultural implements is the immense poverty of the agriculturists and also the illiteracy of the ryots.

Owing to the immense poverty of the agricultural class, we have so far been able to sell our implements to the advanced public and mainly through the instrumentality of the petty traders of the towns.

But as the cultivators are too poor, only those who have cash in hand can alone take advantage and therefore the sale through petty traders is naturally a limited one. If an impetus to the sale of these implements is to be given, we propose that agricultural development societies should be started at each and every village and they should be properly organised under the supervision of the Agricultural Department. The capital of the agricultural societies should be subscribed by the local people. These societies should then purchase the ploughs and other implements required by them from the manufacturers. Wherever the people are too backward, Government should start an association on its own account, show the working to the people by investing its own money and gradually withdraw its capital when it is fully subscribed by the local public. If proper recognition is given to the work of the organisers of the unions and the Secretaries and Chairmen of the various societies from time to time, we feel certain that there will not be any dearth of men coming forward to do the honorary work.

However, even after the organization of the societies, it will be found that sufficient sales do not take place owing to the poverty of the public and therefore the societies should organise the sales on the instalment system, instead of requiring the payment all at once. The collection of the instalments should be made regularly and, if there are defaulters, the collection should be made by Government on the mere application of the Chairman of the agricultural society. This plan will go a long way towards rapidly introducing the implements in every nook and corner of India and we trust at once a demand for a lakh of ploughs a year can be created, even in the initial stages of the progress of the unions.

As there are very inadequate facilities for transport, a good deal of money and time is spent after the goods are ordered by the public and therefore there should be good transportation facilities and the railway freights on agricultural implements should be still lower than they are at present. Again, there are innumerable breakages and losses of goods in transit and the laws of the railway are such that no effective steps can be taken against them for breakages in transit. In our opinion, the railway companies should be held responsible for breakages in transit so that the immense losses to which the poor agriculturists are put will be saved from them. Moreover the railways delay inordinately in carrying the goods; sometimes months pass before the goods reach their destination and even when they arrive at the

* Not printed.

Messrs. Kirloskar Brothers, Ltd.

destination they arrive in ninety cases out of hundred in somewhat damaged condition. The customers are naturally disgusted owing to this delay and they attribute all this trouble to the manufacturers. We therefore propose that the railway rules should be so modified as to hold them responsible not only for all breakages and losses in transit but also they should be made to carry goods within a stipulated period.

Secondly, the railway company at present charges one rate for ploughs and quite another for chaff cutters, pumps, sugar cane crushers, etc. The latter articles are charged at present at second class rates and our efforts to get them charged to the first class rates have all been futile and even the efforts of the Agricultural Department to get concessions for sugar cane crushers were not successful. This railway freight has been a great hindrance in introducing our implements in far off places and naturally the foreign countries who ship their goods to various ports in India get the advantage over the Indian manufacturers. We therefore trust that if the rates are sufficiently reduced, we shall be in a position to effect large sales in the agricultural implements.

There is also a good deal of difficulty with regard to the distribution of agricultural implements owing to the immense backwardness and illiteracy of the cultivators and, unless the system of compulsory universal education is brought into force, the public will remain in darkness as regards the use of improved implements as no amount of literature will ever be of any use. We therefore recommend that arrangements should be made immediately to introduce compulsory education among the masses and in the meanwhile to supplement the education by magic lanterns and cinemas illustrating the use of the improved implements and their advantages. In our opinion, each taluka development association should have such a cinema film and they should show this every week to the cultivators of each and every village in the taluka. This will greatly impress upon the minds of the illiterate cultivators the advantages to be derived from the use of the implements.

Along with the shows, cinemas and magic lantern lectures, we think that a large amount of literature giving information should be circulated free among the cultivators from time to time and, if possible, the Department of Agriculture should issue a monthly magazine in the vernacular in each Division, giving information to the public. Recently, with a view to circulate such information among the public, we organized a magazine, but owing to the lack of contributions from the departmental people, we had to discontinue it. We therefore think that the department should actively help all work of manufacturers which is meant to educate the cultivators.

From the report of the sales of agricultural implements published by the Department of Agriculture in India, it will be found that in the majority of cases, and especially in the Punjab and in Sind, the Department has been selling more foreign ploughs than Indian-made ploughs. We think that, when there are Indian manufacturers in India who are crying for help to introduce their own manufactures, the patronage given to foreign manufacturers should be discontinued and we therefore would like the Commission to recommend the use of Indian made articles in preference to the foreign ones.

Help can also be given to the Indian manufacturers who are sending out travelling salesmen to canvass for orders for their goods by giving them concession rates on the railways and also by the Agricultural Departments giving them the help they require. The Agricultural Department should not think that the work of the manufacturers is quite different from their own work and, instead of the indifference which is sometimes shown by the department towards the activities of the manufacturers, the department should whole heartedly co-operate with the manufacturing firms and their representatives. In short, the department should consider the manufacturing firms as their own workshops instead of treating them as outsiders.

A suggestion has been made by the Chief Controller of Stores that the purchasing of implements should be made by the Stores Purchase Department of the Government of India and we whole heartedly welcome the idea of the Chief Controller when he says that the manufacturing firms should be given orders in lots; but the only safeguard that we wish to have is that the interest of Indian manufacturers should in no case be subordinated to any other consideration.

We have tried to show, as far as possible, the difficulties which we are encountering and have also tried to show the ways in which these could be overcome. We trust the Commission will give very careful consideration to our suggestions and try to remove the difficulties in our way as far as possible.

Lastly, we extend an invitation to all the members of the Commission to pay a visit to our works, even at some inconvenience to themselves. As ours is the only institution of its kind in India, the Commission will lose an opportunity of studying first hand conditions prevailing at the manufacturing centre of agricultural implements in India, if they conclude their investigations without a visit to our works.

Mr. L. K. KIRLOSKAR, Chief Manager, and Mr. N. W. GURJAR, Secretary of Messrs. Kirloskar Brothers, Ltd.

Oral Evidence.

50,283. *The Chairman*: Mr. Kirloskar, you are Chief Manager of Messrs. Kirloskar Brothers, Limited?—Yes.

50,284. And Mr. N. W. Gurjar is the Secretary of your firm?—Yes.

50,285. And you gentlemen are here to speak on behalf of that firm?—Yes.

50,286. You have provided the Commission with a note of evidence. Would you like to amplify that at all at this stage?—(*Mr. Gurjar*): I would like to mention one thing. On page 355 of the note of evidence, we have stated that the Railway Company at present charges one rate for ploughs and quite another for chaff-cutters, pumps, sugarcane crushers, etc. I want to amplify that by saying that the Customs Department allows these implements to come duty free owing to their being agricultural implements, and we maintain that the Railway Companies should also look upon those implements as such. The Railway Company do not classify these implements as agricultural implements as the Customs Department do.

50,287. Your point is that the classification adopted by the Customs Department is different from that adopted by the Railways, and you want the Railways to adopt the Customs classification?—Yes.

50,288. On page 352 of your note you point out that it is necessary to bring the cost of production as low as possible in order to bring your product within the purchasing power of the cultivator in India, and you suggest that there should be some remission in the duty of steel imported into this country. Are you suggesting there that there should be a special remission on account of steel to be used for the manufacture of agricultural implements?—Yes.

50,289. But not a general remission?—No.

50,290. Do you not think that the administering of such a rule would raise difficulties? Do you suggest that there should be import under license? Or what steps do you advocate?—Whenever we send a consignment of agricultural implements out of the factory, the Government can see how much material has been used for agricultural implements, and on that a remission might be granted.

50,291. So that you would get your relief after you had used it on agricultural implements?—Yes.

50,292. *Mr. Kamat*: You want a sort of rebate arrangement?—Yes.

50,293. *The Chairman*: Have you ever made that suggestion to Government?—We made the suggestion before the Tariff Board, but they were of opinion that the rise in the cost of agricultural implements would not matter much; that was the opinion of the President of the Tariff Board. To be exact, they said it would affect the price to the extent of about Rs.3, and that is not very much.

50,294. Do you think that Rs.2 or Rs.3 is very important?—Of course, even one rupee is very important.

50,295. Do you use any steel manufactured in India?—No, because the Tata steel prices are very much more than the prices of continental steel; the freight from Tatanagar is Rs.68 per ton, whereas the freight from the Continent is only Rs.28 per ton.

50,296. *Professor Gangulee*: Most of the steel that you use comes from the Continent?—Yes.

50,297. *The Chairman*: I understand that a further difficulty with which you are faced is in obtaining designs for agricultural implements suited to different soils in India?—Yes.

50,298. And your suggestion, I take it, is that the Agricultural Departments should carry on that investigation and arrive at a satisfactory solution?—Yes.

50,299. You also suggest that the Agricultural Departments should carry on propaganda designed to promote the sale of these improved implements?—Yes.

50,300. And you wish them to publish literature?—Yes.

50,301. Are you in competition with other firms manufacturing agricultural implements in India?—We are, to a certain extent.

50,302. Can you give an idea of the volume of your own business in relation to the total business done by manufacturers of agricultural implements in India?—It is in the proportion of two to one. If we sell one lakh, they sell fifty thousand.

50,303. Do you suggest that Government should undertake these investigations and these experiments, and also this duty of advertising and pushing the sale of the wares, as a lasting undertaking?—No. We want them to do it only for some time. It is quite necessary in places where the implements have not yet been introduced. In the Bombay Presidency we are well established and even without Government help we can organise the sales. But in places where these implements have not been introduced, the help of Government is quite essential. We are not able, otherwise, to approach each and every individual who may require the implements.

50,304. The information in graph form, which you have provided the Commission with, indicates that while your sales have increased considerably, there has been a drop since 1923; the sales were greater in 1923 than in 1924 and 1925?—That was because the Berar cotton crops were not good in 1924 and there was a drop in the price of cotton.

50,305. The fall in prices has affected your sales?—Yes, because our implements are largely used in the cotton country.

50,306. Are you selling on the instalment principle?—We are not selling on the instalment principle, but there is one merchant who buys the implements from us and sells them on the instalment system. The system was introduced only last year, and he has been able to sell 1,000 ploughs.

50,307. What exactly are the terms?—The cost of the plough is Rs.33; the cost is recovered in six monthly instalments, the first instalment being Rs.10.

50,308. That in fact enables a cultivator to buy a plough before he cultivates his field and pay for it after he reaps his crop?—Yes.

50,309. *Professor Gangulee*: How do you gaurd yourself against breakage? —We do not hold ourselves responsible for breakages; the cost is required to be paid by the men who purchase the ploughs.

50,310. *The Chairman*: Do you, yourself, carry on any experiments designed to discover what type of implement is required?—Sometimes we do carry out such experiments, but it is not done regularly.

50,311. Have you any organisation for repairs?—No; but the repairs are so simple that the merchant who deals in them can carry them out himself.

50,312. Have you any travelling salesmen?—Yes.

50,313. Do they carry implements with them?—No. When our travelling agents go out, they make use of the implements which we stock in Government farms for experimental purposes.

50,314. Do Government buy these implements from you?—No; they do not buy. We give them to Government free of all charges and ask them to experiment in their farms. In one State we gave 24 ploughs absolutely free of charges for experimental purposes and for distribution among cultivators.

50,315. Was that initiative justified by the results?—Yes.

50,316. You had good sales there?—Yes.

50,317. Your hope is that the Agricultural Department will make the necessary arrangements to bring these improved implements to the notice of the cultivator?—Yes.

50,318. You suggest that your salesmen who go out into the rural districts in search of orders should be given concessions by the railways?—Yes. The representatives of commercial firms are now given concessions in regard to first class seats; we propose that those concessional rates should be extended to second and third class seats.

50,319. Are there no special rates for commercial travellers in Indian railways?—Not for second and third classes; they are only given for first class.

50,320. Are there any other difficulties in your way, other than those brought forward in the note?—Not at present.

We are greatly obliged to your firm for the kind invitation to visit and inspect the works on the site.

50,321. *Sir James MacKenna*: With how many of the Agricultural Departments are you in close touch?—The Bombay Agricultural Department, the Madras Agricultural Department, and the Agricultural Departments of Mysore, Hyderabad, United Provinces and Central Provinces.

50,322. You are not in touch with the eastern part of India?—That is because it is very difficult to transport our implements to those parts; otherwise, there is every possibility of our being able to introduce our implements in Bengal, Bihar and Orissa and Burma. As a matter of fact our implements have been sent to those places and they have been liked. It takes two or three months to transport the implements from Kirloskarwadi to those places.

50,323. Therefore, unless you have very bulky consignments, the overhead charges would be very considerable?—Yes.

50,324. *Mr. Calvert*: On page 355 of your note, you say: "It will be found in the majority of cases, and especially in the Punjab, that the departments have been selling more foreign ploughs than Indian-made ploughs." That does not correspond with the official figures. Would you

like to correct it?—The point is more foreign ploughs are sold in the Punjab than Indian ploughs; as a matter of fact we have not sold any ploughs in the Punjab.

50,325. You propose that there should be a steady demand on your firm for ploughs?—Yes.

50,326. Do you not think that that would lead to a difficulty such as was experienced in the case of wagons? I think you have heard of it recently?—Famine does not as a matter of fact occur all over the country; the implements can be sold in tracts where there is no famine prevalent at the time. I do not say all our implements should be purchased.

50,327. You have not understood my question. Government tried to encourage wagon manufacture by giving an annual demand for wagons; the result is there is a surplus of wagons now?—But these implements are a permanent need of the agriculturists.

50,328. The wagons are also a permanent need?—While there are 30,000,000 ploughs in use, we have sold only 100,000. There is a vast scope for the introduction of these ploughs.

50,329. *Mr. Kamat*: To refer to the two minor grievances you mention, namely, delay and breakages in railway transit: have you brought them to the notice of the railway administration?—Under the present system, there are two risk note forms, railway risk note form and owner's risk note form. The charges under the railway risk note form are higher than for the owner's risk note form. In the case of the owner's risk note form, the railway do not hold themselves responsible for anything.

50,330. Have you made any suggestions to the railway authorities about this?—No. Even in the case of the railway risk note form, there is a difficulty as to packing; the railways require the goods to well packed, and if the packing is all right even though the goods inside are damaged the railways do not hold themselves responsible.

50,331. The reason may be this: A Risk Note Committee was appointed; after lengthy deliberations with the railway authorities as to the procedure that should be adopted by the consignors when they want a certain risk to be taken by the railways, and, as a result of the recommendations of that Committee, Government issued a resolution under which these two notes, railway risk notes and owner's risk notes, are in vogue. The Risk Note Committee had suggested that in the case of railway risk notes, the packing should be in a certain form. But you want to go beyond what the Railway Risk Note Committee has settled. Have you made any concrete suggestions?—We have not made any suggestions to the Railway Department.

I am asking you because, before we can consider your grievance, we want to know what efforts you have made since the Railway Risk Note Committee's recommendations were given effect to.

50,332. Similarly about the stores purchase system. You want that the Controller of Government Stores should purchase your implements?—It was the suggestion of the Controller of Stores before the Commission that Government should purchase implements for their departments.

50,333. Here again I want some information. The Controller of Government Stores is bound by what are called Store Purchase Rules. The rules were settled, after a committee was appointed and the sanction of the Secretary of State obtained to those rules. If the Store Purchase Rules permit Government to do what you want, have you brought it to the notice of the Controller? Have you studied the Store Purchase Rules of the Government of India?—In what respect?

50,334. The Government of India have framed certain rules laying down the system under which the purchase of indigenous or *swadeshi* articles

should be made by the Controller Have you studied those rules?—I have not read those rules.

50,335. I wanted to know whether you had gone through those rules and pressed upon the Government of India the desirability of adopting your suggestions?—As a matter of fact, at present, the Stores Purchase Committee is not purchasing any agricultural implements. The whole of that purchasing is done by the departments individually.

50,336. I say there are certain rules in existence, under which Government can purchase Indian-made articles, and manufacturers can ask Government to give them a certain amount of patronage, subject to certain conditions. I wanted to know whether you have studied those rules and brought them to the notice of Government.

50,337. Do I understand you to say that the attitude of agricultural engineers towards your factory is not as friendly as you wish it to be?—No. We want it to be more friendly than it is at present. I do not mean to say that they are inimical; at the same time, I should say that they are not taking as much advantage of our concern as they ought to.

50,338. Do you mean that they do not recommend the various districts to buy your ploughs or chaff-cutters?—That is not my complaint. There are many other implements that are, as a matter of fact, required by the farmers for their use. They ought to be suggested by the Agricultural Department to us for manufacture.

50,339. Is there a feeling prevalent in the Agricultural Departments that, quality for quality, the Kirloskar plough is inferior to the English article?—There was that feeling, but it was set right when the quality of our plough was tested by the Director of Industries four years ago, and when he gave it as his opinion that the make of our plough is as good as the foreign plough.

50,340. In point of every test?—Yes.

50,341. Durability?—Yes.

50,342. Turning capacity and other things?—Yes.

50,343. With regard to long distance transportation, to Bengal and the Eastern parts of India for instance, have you asked the railways concerned to give you a concession rate for a distance beyond a certain mileage?—We asked for concession rates beyond 500 miles, but they have absolutely refused to look into the matter.

50,344. You wanted a special rate for distances beyond 500 miles?—Yes.

50,345. That means to say the concession would begin from Nagpur?—No. From, say, Akola.

50,346. And they have refused?—Yes. Many of our sugarcane mills are going to the United Provinces, and the railway freight on one mill comes to about Rs.40.

50,347. Supposing you were prepared to meet them by saying that you would be contented to have this concession, say for distances beyond 1,000 miles, do you think they would be prepared to give it?—I do not think so.

50,348. Even that they are not prepared to give?—No.

50,349. Would it meet your case, if that concession were given?—Yes. We shall be able to make good sales if our ploughs go beyond Nagpur even. Nagpur is at a distance of 1,000 miles from our place.

50,350. *Dewan Bahadur Malji*: Do you do any propaganda yourself?—Yes.

50,351. Are your men going out into the interior and showing your implements to the agriculturists?—Yes.

50,352. Do you do that in all parts of India, or only in the Deccan?—It is more in the Deccan than in the other parts.

50,353. Have you tried this experiment in Gujarat, except through the departmental officers?—No. We attend agricultural shows, and there experiments are made with our ploughs by ourselves.

50,354. Beyond that, nothing further is done?—Nothing further is done.

50,355. *Professor Gangulee*: In regard to designs for agricultural implements, can you tell the Commission what assistance you have obtained from the engineering section of the provincial Agricultural Departments?—So far, none.

50,356. Is there any particular plough that you turn out in which you got some assistance from the department?—We have not got any such assistance. On the contrary, we wrote to the Agricultural Engineer of the Bombay Presidency to give us some suggestions. His reply was that he was considering the question, but even after a year we have not received any suggestions from him.

50,357. Who designs your ploughs and agricultural machinery now?—As a matter of fact all the ploughs are designed by our own men.

50,358. Do you visit agricultural institutions where tillage experiments are being conducted?—Yes.

50,359. The point that I want to get from you is, what is your relationship with the existing engineering section of the Agricultural Department?—There is no relation. Whenever we ask for any advice, they give it if they can; otherwise, they do not.

50,360. On no occasion have you sat round a table to discuss problems of agricultural engineering?—No.

50,361. With regard to the breakages to which Mr. Kamat referred, 90 cases out of 100 is the figure you give us of cases damaged in transit. That is a high percentage?—Not at all. Take the case of ploughshares. They are required more than any other parts of the plough, as they have to be replaced. They are sold in thousands, and I can say that if 100 ploughshares are sent, 50 will be totally useless and 50 can be corrected locally.

50,362. What assistance do you get from the taluka development associations in connection with your propaganda work?—They help us in small shows. They demonstrate the working of our ploughs. As a matter of fact, in Berar, these associations are working very creditably.

50,363. You think the taluka development associations can be utilised as effective agencies for the spread of your ploughs and other farm machinery?—Yes.

50,364. What is the position of the magazine that you have started?—We want to give technical information with regard to the use of manure, agricultural machinery, etc., to the farmers.

50,365. The magazine which you have given us is in English?—That is in English. We have started a Marathi magazine also.

50,366. It has been discontinued now?—One has been discontinued, but the other one is going on.

50,367. The vernacular one is going on?—We started altogether three magazines, one in English and two in Marathi, one giving technical information which will be more useful to the farmers than to the general public, but we could not make it a success, because we did not get a sufficient number of articles. It was published every month, and we were circulating it free.

50,368. Are you still circulating it free?—That particular magazine for farmers was circulated free.

50,369. Is that magazine still published?—No; it has been discontinued.

50,370. Because you could not carry it on financially?—We did not get a sufficient number of articles, and we could not write the articles ourselves.

50,371. Do your sugarcane crushers, and appliances other than ploughs, come within the ambit of the instalment system?—In the Deccan we do not send out sugarcane crushers on the instalment system.

50,372. You have only tried ploughs on the instalment system?—Yes.

50,373. As you know, perhaps, in other countries the prospect of loss under the instalment system is minimised by a system of insurance. In the United States of America they have developed the instalment system quite well, and there they have a system of insurance. Have you got that system here?—No.

50,374. You suggest that you want Government to help you to create a demand?—Yes, by carrying on propaganda and bringing to the notice of the farmer, in every nook and corner of India, the advantages of the improved implements. Once he is convinced that by improved implements his crop is increased, he is sure to take to the use of these implements.

50,375. Do you agree with me that if things were cheapened through mass production, then they would be popular?—By mass production you cannot bring down the prices sufficiently. After all, there is a limit to prices; you must admit that. Ploughs which are at present selling at Rs.33 could be sold for Rs.25 by resorting to mass production. But even that sum the agriculturist is not in a position to pay at once at the time when he really wants to make use of the plough.

50,376. By propaganda, the cultivator will know that such and such an article is very useful?—Yes.

50,377. We were told by several witnesses before us that the question of prices was a great handicap?—Quite true.

50,378. If you go on the principle of mass production, you are likely to reduce the cost?—Not to the extent to which the agriculturists want it to be reduced.

50,379. As you probably know, experience of other countries shows that the market grows constantly by what it feeds on?—Yes, with a decrease in prices.

50,380. *Dr. Hyder*: What articles do you manufacture besides ploughs?—It is given in the catalogue.

50,381. Do you manufacture *phawras* and *budalis*?—No. They are manufactured by the Tata Agricultural Implements Company.

50,382. With regard to the suggestion of yours that you should get a rebate on the total quantity of iron imported by you, do not you think that that is not a practical suggestion?—It is quite practicable, if we supply them a correct statement of materials used in the making of the ploughs.

50,383. The point is this, that besides your firm there are any number of village smiths who also manufacture iron shares?— Yes.

50,384. If any concession is granted to you, they too would ask for it?—Of course, we do not wish that they should not get it.

50,385. How would Government be able to control it?—The village smiths should get themselves registered as companies with the Government Department.

You cannot get village blacksmiths to register their names as companies. That is where the suggestion breaks down!

50,386. In regard to this question of rates, what is your point? Take the case of Bombay and take a point in the United Provinces, say Jhansi. Is it your suggestion that the railway freight should be reduced and this reduction should be applicable to you as well as to other manufacturers, whether foreign or indigenous?—Yes, we have no objection.

50,387. Do you want any preferential treatment for yourself?—No.

50,388. It should be general?—Yes.

50,389. In regard to the protection given to the steel industry, you know that it is only for a limited number of years?—That is for seven years.

50,390. After that the legislature will reconsider the matter?—Yes, I know.

50,391. *Sir Chunilal Mehta*: You have been in business for many years now?—Since 1888.

50,392. Have you driven out foreign ploughs?—No.

50,393. In the Deccan, for instance, is the import of foreign ploughs as much as it used to be before?—No.

50,394. Very much less?—Yes.

50,395. You have succeeded in producing an article which can compete satisfactorily with the foreign article?—I think so.

50,396. I note that, in answer to a question, you said that there was no contact between you and the Agriculture Department. Is that quite correct?—No, I cannot say that, we have contact. I myself have had many discussions with the Agricultural Engineer and Dr. Mann, the Director of Agriculture.

50,397. In fact, in order to help the manufacture of indigenous articles at a cheap rate, Government appointed a committee (a fairly strong committee) with the Director of Industries as Chairman and the Director of Agriculture as one of its members, and you gave evidence before that committee?—Yes.

50,398. And you showed some ploughs there?—I showed my "Sardar" plough. It was at Poona.

50,399. Perhaps that committee was of some assistance to you?—Yes, but it did not end in any business.

50,400. Why not?—I do not know. They approved of the plough, its design and everything, but it did not result in business.

50,401. When was that committee appointed?—About 1921-22.

50,402. Can you give reasons why there are such variations in the sales of your ploughs?—On account of famine and the drop in prices of farm produce. It directly tells upon the sale of our ploughs, or any agricultural implement.

50,403. There was no famine in 1924?—But prices were low in 1924 and 1925, and at present there is famine in the Berars.

50,404. There must be some reason for this extraordinary rise in 1923?—We reduced the price from Rs.80 to Rs.64 and then again to Rs.33, because the prices of iron were reduced and we were under the impression that by mass production there would be a good demand and we could bring the article within the purchasing power of the farmer, and with that conviction we tried to reduce the price and to get a good sale, and we succeeded at that time.

50,405. Your price is still the same?—Yes.

50,406. Is it within the means of the cultivator?—We cannot reduce it still further, on account of the high prices for iron.

50,407. At the rate of Rs.33 you were able to sell some 30,000 ploughs in 1923. You kept the same rate and the sale has gone down to 18,000 in 1924 and 13,000 in 1925?—That depends upon the prices of cotton. The second reduction was on account of the prices of grain and cotton going down.

50,408. What were your sales in 1926?—Exactly the same as the previous year, 12,000 to 13,000.

50,409. What do you consider would be your normal sales?—About 15,000.

50,410. One of the recommendations of that committee was that you should appoint some travelling agents who should have technical knowledge and who should canvass for orders. Have you done that?—We have about five or six. We first teach them in the factory how to do the business, how to adjust the parts, how to fit up the plough and then we send them out travelling, but we cannot send out a plough with each travelling agent as it is such a bulky thing to carry about.

50,411. No doubt, but wherever they travel there are some ploughs already?—Usually we give some ploughs to merchants; we cannot reach each and every agriculturist in the district.

50,412. Has not that resulted in greater sales?—It has.

50,413. It seems to me that your plan of asking the Agricultural Department to do everything will not be very successful?—Not everything, but much. The finding out of what kind of plough or implement is suitable for a particular area or land is, I think, the work of the Agricultural Department.

50,414. Have you not got into touch with the Deputy Director of the Southern Division? I remember you got into touch with him and he was studying the plough on the Government farm there. Did you not get any assistance from him?—We did; we are getting it gradually, but we want more and more assistance.

50,415. I mean to say it is not possible for Government to appoint agents? —Not agents but Agricultural Engineers.

50,416. *Professor Gangulee*: You want technical advice?—Yes, particularly about soils, which our travelling agents cannot give.

50,417. *Sir Chunilal Mehta*: That was done in the Southern Division at Dharwar. The Agricultural Officer gave you all the information that you wanted about the soil, about the strain on the bullocks dragging these ploughs, about what changes should be made in order to make that plough as easy as possible for the bullocks, etc.?—We have adopted many of his suggestions by chilling the shares, by grinding the mould board, by getting the draught re-designed and so on. But we want more and more of this.

50,418. Are you quite sure that you are doing your share?—As soon as we get suggestions we adopt them if they are profitable. We have got suggestions from the Mysore Agriculture Department in respect of the Malnad plough. We sent out one of our men to study the thing and he showed us what kind of a design was wanted by the agriculturists. We designed that plough and it has become popular in that tract.

50,419. Is your factory competing with any other?—Yes, with the Satara Agricultural Association.

50,420. When did it come into existence?—Three or four years ago.

50,421. Has that affected your sales?—I do not think so.

50,422. They must be selling something if they are existing?—By their selling, the number of customers is increasing.

50,423. It has no effect at all on your sales?—No, we are selling our ploughs wherever "Kirloskar" ploughs are wanted and they take no other.

50,424. The assistance you ask from the Commission is (1) reduction of railway freight, (2) reduction in the import duty on the raw material that you use, and (3) assistance from experts from the Agricultural Department?—Yes.

50,425. Will you be prepared to employ some experts?—If some concrete suggestion is made we shall be prepared to consider the question.

50,426. *Mr. Kamat*: In your factory, are there men who have received their training in foreign countries?—Yes. My son has returned from America as a B.Sc. of the Technological Institute of Massachusetts.

50,427. Those men know, and do, smelting etc.?—Yes, exactly like coolies.

50,428. You are high-class Hindus?—Yes, we are Brahmins.

50,429. Your men with foreign training have been travelling in different parts of the Bombay Presidency. Is it your experience that their ideas do not usually coincide with the ideas of the Deputy Directors of Agriculture and that the notions of the Deputy Directors are entirely different?—No.

50,430. *Sir Chunilal Mehta*: I suggest to you again, as I have suggested to you before, that it would be good business to employ one or two men, with this training, to go out and study conditions for themselves and to produce an article that will suit the requirements of the cultivators. Supposing you employed one man and gave him a restricted area, what would the whole thing cost?—I go on tour myself, studying conditions with regard to the sugarcane crusher that we have made this year, to see how it works. I went to Baramati and Akluj, thence to Sholapur. It was introduced only last year. It is named "Kamal" sugarcane crusher. I sent a man to Bangalore, Hospet and Bellary to study things on the spot. Our ordinary agents do not have that capacity, they are only sellers, they are not designers, neither can they give us any ideas on the technical side of the matter.

50,431. What would such a man, equipped with technical knowledge, cost?—From 300 to 500 rupees a month.

50,432. With Rs.5,000 a year you can get all the information you want about a particular tract?—Yes.

50,433. Is that beyond your capacity?—No.

50,434. Why not try it?—We are trying it. I myself am going out, I am sending my son, I am sending my Superintendent. He went to Bangalore to study this question with the Mysore Department.

I must say, for the information of the Commission, that this firm (Kirloskar Bros.) has been useful to the department and carried out most of our suggestions, but they are not prepared to carry out this particular suggestion though we consider it to be of the greatest importance.

50,435. *The Chairman*: Are you employing any first class agricultural engineer at the moment?—We have got a B.Ag from the Agricultural College, Poona, not as an engineer but as a chemist, to study the raw material that we import.

50,436. How about agricultural engineers? Do you employ any?—No, we have nobody serving as an agricultural engineer.

50,437. *Sir Chunilal Mehta*: You have sent out three or four men to foreign countries to study the technical side of the question?—We sent one man to America, another to Germany, (he is still studying there), one we sent to England to study the subjects of advertising and salesmanship and he has now returned.

50,438. *Professor Gangulee*: Do you utilise co-operative societies for the sale of your implements?—Only the Bombay Central Co-operative Bank are selling some of our goods.

(The witnesses withdrew.)

Mr. S. D. NAGPURKAR, M.Ag., of the Union Agency, Poona (Manures).

Replies to the Questionnaire.

Introduction.

Before dealing with the Questionnaire presented by the Royal Agricultural Commission I desire to put forward, in a nutshell, the point of view from which I look at the problem of agriculture in India, particularly the agriculture of Western India, with which I have been connected on account of my avocation for more than 15 years.

1. The agricultural problem of India is mainly a problem of dry cultivation. Government statistics show, and all agree with them, that more than 85 per cent. of Indian land depends for its moisture supply on the rains, direct to the soil, during a period of about three to four months out of the year. Even if all the thinkable sources of irrigation be exploited the percentage of dry arable land will not go below 80 per cent. of the total.

2. The population of India is mainly an agricultural population; 80 per cent. of it depends directly or indirectly on agriculture alone. Even when all industries, making India a self-contained nation, develop and flourish in the country, the population absorbed by them cannot be taken away from agriculture or accommodated in industries unconnected with it.

3. Dry agriculture in India, under present conditions, is more or less a risky business. The rainfall extends over a period of two to four months; it is ill-distributed and never certain. In three years out of five it is generally less than average, and one year out of seven is generally dry.

4. Dry farming cannot by itself keep occupied those that depend upon it as their avocation for more than six months in the year.

No country in the world can prosper with 70 per cent. to 80 per cent. of its population remaining idle during six months out of every twelve.

5. In India the average income per head per annum, estimated most liberally, is not more than Rs.50/-. It had to be and has been admitted that this income cannot provide even human necessaries, not to speak of comforts, to the people. Reliable statistics place the annual Indian yield of grain at about 80,000,000 tons; the population requires, at the lowest estimate, 100,000,000 tons for itself and about 40,000,000 tons for its cattle to keep it in healthy condition. Thus the present production supplies exactly half the needs of the people in normal years. To provide the other half is to-day's agricultural problem.

6. India is a very old country and is thickly populated. There is very little room for extension of cultivation by bringing, economically, arable land under the plough in order to keep up the deficiency.

7. All measures, all research, the whole thought must, therefore, be devoted to the one subject—how to make the dry arable land give at least double of the yield that it is giving to-day

QUESTION 1.—RESEARCH.—How to organise, administer and find the finance for research, is the question of the statesman, the politician, and the administrator. I do not pretend to be any of those. My question is to state the most critical subjects of research of the day.

Increase of food grains, even in preference to the production of tobacco, cotton and such other crops, is the first question of the day. This can be achieved by either extension of area or by increasing the yield per acre. The subject of research is this second—"the increase in yield per acre." The directions of this research are (1) the selection of drought and disease resisting seed, (2) conservation of available moisture in the soil, (3) use of proper manures.

Increase in the number and the quality of cattle is one of India's very important problems. Research in this regard is necessary and it should consist of finding out or improving the local strain of cattle so as to have a better milching capacity and better strength for draft purposes.

QUESTION 2.—AGRICULTURAL EDUCATION.—The object of agricultural education is to make the farmer fit for his avocation. The present system is much too defective from this point of view. The present institutions fail to attract the farmers' children to them. A majority of the students coming to these institutions do not come with the object of being trained in the methods and science of farming, which training they can make use of on their farms when they later on return to them. A boy comes there with the object of being able to earn better wages by doing some work which does not confine him to his farm. The real object should be to confine the trained boy to his farm and enable him to make a better living out of that farm. To attain this we have to go to the village, to the field, to the actual place where the farmer's activities are going on and there train him in better methods, under the advantages and disadvantages of the actual situation. This means boys are not to be induced to schools wherever they are, but education is to be carried to them and their parents at their farms and their houses. The present system is to educate mostly through books; to attain our object and to meet the exigencies of the times, we must make most of it oral and accomplish it by appealing to his common sense and developing his sense of observation.

This system of education requires teachers, organisers, research workers and experts as does the system in vogue. The present colleges do turn out these classes of scholars but there are certain imperfections in the college curricula which must be improved and these must be brought in line with similar institutions in the West.

The education of adult farmers has not yet even been attempted.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—Under the present conditions of the Indian farmer, demonstration is the only method of agricultural propaganda. Demonstrations should always be on the farmers' lands, they should be worked by the farmer's hands, under his own conditions, and the improvements to be demonstrated should be guided or directed by the expert. It is only the result of such demonstrations that will convince the man and bring him to an acceptance of the methods and theories and then introduction to his daily practice. Demonstrations should consist of methods and practices the certainty of whose success is undoubted.

No real measure of propaganda, which would lead to success, has yet been adopted. In fact, even the subjects which need immediate improvement have not been studied as well as they ought to be from the farmer's point of view.

QUESTION 4.—ADMINISTRATION.—The agricultural conditions in India are very varied and the problems differ according to differences in soils, climates, and characteristics of the farmers. The present political divisions are unsuitable to agricultural conditions. From the farmer's point of view I would alter the existing divisions. Each agricultural Province should be a complete unit as regards its agricultural problems and their solutions.

The Agricultural Service, as it is at present constituted, is not in tune with the agriculturist, because the habits of living, the training and the technical education of its members do not quite harmonise with the modes of life, the eccentricities and the receptivity of the Indian farmer. No doubt there are a few who have understood the spirit and taken to the right line of their mission. Veterinary science, as it has come from the West, is unsuited to Indian needs. India had and has its own veterinary science, with its simple drugs and methods of treatment. It ought to be seriously studied, developed where necessary, and taught in the agricultural colleges.

The railway and steamship administration look to the export and import side only. They appear to be quite unmindful of the fact that they owe an obligation and a duty to the agriculture of the country which has helped to their creation as well as their maintenance. The angle of vision must be changed. The Meteorological Department has been in existence for a number of years and has been making observations and collecting data year after year, but the point of view has all along been the service of navigation. The department is oblivious of the utility of the science to agriculture. The department, with the data collected for scores of years, cannot predict rains or frosts. Our old *Joshis* (astrologers) of the village were doing some little service, at least, to the farmer by their own empirical methods. With the present advance of the science of meteorology the department ought to be able to render some help to the cultivator. The efforts of the department must be directed to the use of the agriculture of the country.

There should be one whole-time Minister of Agriculture in Council (made up of experts and representatives of the cultivators) and he should have under him the following departments, each department under the expert in the line:—

(1) Agriculture proper (Administration, Research and Education).
(2) Civil Veterinary and Animal Husbandry.
(3) Co-operative.
(4) Irrigation. (Distribution of Water.)
(5) Forest.
(6) Cottage Industries.
(7) Meteorology. (Agricultural.)

QUESTION 5.—FINANCE.—Indian agriculture requires finance for three purposes, (1) to remove the burden on the lands, (2) land improvements, and, (3) agricultural operations. The financing of the last is not a question of as great a magnitude as the first two. The first two would require enormous amounts and they cannot be expected to be repaid within a short period.

In the present state of things, the Government itself must supply a part of the required finance and some part it can invite from the capitalists. The capitalist is unwilling to invest his money in this business to-day because he is afraid of the risks it entails. If Government comes forward to remove this fear of the capitalist he will as readily invest his money in this business as he does in any other. This fear can be removed by Government offering its guarantee as security, as it does in cases where loans are invited for public bodies like the Railways and Municipalities. Crores can be collected within a short time by this method.

The disbursement of these funds should be handed over, under proper safe-guards, to Peoples' Banks and Co-operative Societies.

Capital for the first two purposes should be supplied on a system of long term loans extending over a period of 50 to 75 years, repayment instalments consisting of interest as well as a part of the capital. The administration of this class of loans should be in the hands of the Peoples' Banks.

The finance required for agricultural operations should be only of a temporary kind, its period of repayment being made dependent on the period of a harvest. The main purposes for which actual cash is required in agricultural operations are, (1) seed, and (2) manures, (agricultural cattle being included in land improvement long term loans). Finance required for these purposes ought to be supplied from Government funds, but not as is at present unsatisfactorily done by the *taccavi* system. The disbursement of these funds should be entrusted to the co-operative societies and the direction of the utilisation should be left to the Agricultural Department.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—Indebtedness is the result of Government taxing all kind of modern conditions of good government with-

out developing the resources taxed, the result being over taxation in pro portion to the income.

Dry farming, which constitutes the greatest part of Indian agriculture, has not been helped by any measures of improvement leading to increase in yield, and no measures of security against the occurrences of droughts, or of fighting against the results of these, have been provided or even investigated. These are the main causes of accumulation of debts for years, and that the cultivator cannot repay loans. He has no source of credit except his habits of honesty and industry. To make his agriculture paying is to help him to pay his debts. He is ever ready to pay if he can. No legislative action would do any good.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—In dry farming, one farmer and his family can cultivate not more than 15 to 20 acres in one season. To cultivate more than this, paid labour will be necessary, which has been found to be un-economical. In the course of the last half century a certain percentage of the land has been much too fragmented, but there are evident signs that the limit where fragmentation becomes un-economical has been reached and the course has turned round and consolidation has already commenced. There are clear signs that, if things are left undisturbed, this natural consolidation process will continue to the point where each fragment will suit the managing capacity of one farmer and his family.

The whole political and social structure of present times and of Government legislation is based on individual action and individual liberty. Any legislation, therefore, for forced consolidation will not only prove futile but will be unnatural revolution running into communism.

QUESTION 8.—IRRIGATION.—The experience of the past two decades or so has shown us that irrigation by perennial canals, without its complement of a system of drainage, does a great harm in many parts of the country. It is again a question whether the cost of canal construction, with the cost of drainage system, will be an economic proposition. This problem requires much more investigation than has been so far done. Again, considering the whole arable area, only a very small fraction of it can be served by a system of perennial canals.

Seasonal canals, ponds, tanks, large and small embankments, and *bunds* and wells are the best systems, having behind them the advantage of the dependable experience of hundreds and thousands of years. These works can cover a comparatively larger area than perennial canals.

One more source of irrigation which has become possible is lift irrigation with power-pumping machinery. This should be utilised where deep basins exist.

Boring to great depths having become possible, it should be resorted to in tracts where there are indications of underground streams. Investigation by methods of water finding is necessary. India possesses empirical methods and men who know them, of the finding of this water.

The most important source of moisture is the retention of moisture which comes in the form of heavy downpours generally received at the end of the hot season and again in the month of October. This moisture is not only completely wasted to-day but runs to the sea with the most fertile upper layer of the soil. Investigation on this problem is necessary.

Much of the water that comes round during the regular monsoon season is preserved by proper cultivation of the soil, which the Indian farmer is well conversant with.

Encouragement of land development by the cultivator and the undertaking of larger schemes by Government itself are necessary.

QUESTION 10.—FERTILISERS.—Farm yard manure, street sweepings, green manuring, sheep folding, bones, fish and oil cakes are considered natural manures. All chemical manures and their mixtures may be styled artificial

fertilisers. Both kinds are required by the soil, each being a complement of the other. The first kind chiefly maintains and corrects the physical and bacterial condition of the soil and the second serves to replenish the plant foods.

Farm Yard Manure.—The stock has to be increased by encouragement of cattle-rearing and by proper preservation of the excreta, both dung and urine and refuse. The manufacture of poudrette in cities and towns should be encouraged.

Sheep-folding.—This is a source of plant food in a concentrated, available form and was, and ought still to be, most economical, but is not so at present. Sheep rearing has to be encouraged for this and it can be done only by making the forest laws less rigorous and by opening up, for grazing, *mal* lands which are agriculturally uneconomic.

The export of bones, fish, and oil cakes should be prevented by all possible means. Fishery and fish oil manufacture should be encouraged.

Chemical manures.—These should be manufactured in the country by the most modern and cheapest methods. Raw material for the manufacture of almost all these are available in the country; so is power also.

Green manuring.—This is not possible on dry-cropped areas under present conditions. It is possible, is in vogue and should be further encouraged on irrigated lands, so that this, with addition of concentrated fertilisers, will supplement the farm yard manure that is at present almost solely absorbed by irrigated commercial crops, and make it available for dry crops.

The simplest method of preventing adulteration is to introduce some enactment similar to the Fertilisers and Foodstuff Act of England.

Demonstration on the farmers' land is the surest and the most direct method of popularising new fertilisers amongst the cultivators. Another method to achieve the same object is to cheapen them by promoting manufacture in India and by compelling the railway administration to reduce considerably their freights on manures. Sulphate of ammonia has been introduced in Western India as far as the sugarcane crop is concerned, but only to a very small extent.

Experiments with regard to the use of sulphate of ammonia on sugarcane and one or two other garden crops have to some extent been made. Experiments with regard to the use of phosphates and potash manures have been made to a lesser extent still. There is such a variety in the soil and climatic conditions in India, nay, even in every district in India, that very much more investigation is needed. Again, what investigation has been once done has not been followed seriously and critically. There is a vast amount of work yet to be done in the matter.

The only way to discourage the use of cow-dung as fuel is to supply another fuel to the farmer which is as cheap and as readily available.

I have been connected with a firm of Indian manure merchants for more than a decade and have also done propaganda work for the same firm and for Sulphate of Ammonia Federation on behalf of the same firm as an adviser. Though I do not pretend to have made any exhaustive study or experiments regarding the question of manures, I have made a few experiments on different crops and soils, the results of which I shall feel happy to place before the Commission if asked to do so. I can however maintain with confidence that manures, both natural and artificial, have the greatest use and must one day play a most important part in the economy of Indian agriculture.

QUESTION 11.—CROPS.—Improvement of existing crops is possible under present conditions by selection and breeding of dry food crops, with a view to reduction of the period of growth, without losing the quality and quantity of the yield.

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Improvement by way of importation of exotic crops need not be attempted. Our agriculture has already made the proper selection according to the existing soil and climatic conditions, especially in cereals.

Grasses in our country cannot be depended upon as a nutritious fodder during the whole year because in their dry condition they lose much of their nutritious value. Besides, there is not much spare land for growing grass alone for fodder. The conclusion is that whatever improvement is made in grain crops serves as an improvement in the fodder supply also.

Selection and distribution of selected seeds is a necessity. Propaganda in better methods of selection and preservation of seed is necessary. Selection and preservation of seed was at one time very carefully done; it is now not cared for as it ought to be. The present recklessness is the result of the general desperate, depressed condition.

Damage by wild animals is naturally being decreased. What remains is in certain tracts which are in the neighbourhood of forests. In such tracts, if the Arms Act is made more liberal, it would suffice to mend matters.

QUESTION 12.—CULTIVATION.—The Indian system of tillage, rotation and mixing of crops, which is the result of the experience of thousands of years, is practically so perfect that modern science, as it stands to-day, can teach no new methods.

QUESTION 13.—CROP PROTECTION, INTERNAL AND EXTERNAL.—It is only in a very few cases that foreign seed is imported. However, it is but right that even in those few cases it should be so examined and treated as to make it innocuous as far as possible.

As regards internal protection what investigation has so far been done has not even touched the fringe. Any amount of labour spent on this behalf will be most useful.

QUESTION 14.—IMPLEMENTS.—Our implements as they are made are the most suitable for the conditions in regard to the different soils, climate, and draft cattle of the country. Their principle has been to use as little iron as possible. This principle is very sound and must be kept in view whenever any improvements or alterations are considered.

Modern machinery such as power pumps, tractors, ploughs, trenching machinery, boring machines, &c., adapted to Indian conditions, will have to be adopted only in the case of land development schemes. In routine agriculture they have almost no place.

QUESTION 15.—VETERINARY.—India possessed at one time the most highly developed veterinary science. Modern veterinary science coming from the West is still comparatively incomplete, at least as far as Indian cattle are concerned. Western veterinary science has before it the ideal, primarily, of the horse and then the milch or meat producing cattle. Indian veterinary science has been mainly based on draught and milch cattle. Western veterinary science has not yet completely supplanted the indigenous knowledge; it has only badly hit it.

The necessity at present, from the farmer's point of view, is the revival of Indian veterinary science and its improvements on old lines.

QUESTION 16.—ANIMAL HUSBANDRY.—The necessity of Indian conditions is to select and to improve the existing strains of draught and milch cattle. Very noticeable deterioration throughout has been caused by the dearth or absence of concentrated cattle food and the deficiency of fodder. Export of oil cakes and oil seeds robs, completely, the only nutritious food of Indian cattle. To prevent this, exports of oil seeds and cakes have to be stopped by measures prohibitive, by export duties on seeds and cakes and bounties on the production of oils. Encouragement of proper

breeding and discouragement of perpetuation of useless strains should be adopted, the principal means being compulsory early castration of bulls other than those required for healthy breeding.

The fodder problem has to be solved by increasing the area under food crops, and by preservation of grass lands as well as by removing the vexatious restrictions of the forest laws.

The dairy business is treated in the West as one of the farmers' industries. It is not so in India. The poor Indian farmer has neither the capital nor the fodder facilities for this. I would rather not treat of the husbandry of dairy animals on this account in this statement.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—Dry farming occupies the farmer intensively during about three months or so during the year. Through the remaining period he has some little work to do on the farm, but that does not occupy his whole time. He cannot, however, be away from his farm. Considering the whole period of the year, the farmer's work in the field may be considered to occupy half the period only. But the occupation is such that he cannot afford to be away from his field for any length of time continuously. The unoccupied period or periods of his time he is obliged to while away for want of other suitable occupations.

Spinning and simple weaving is perhaps the subsidiary cottage industry which is most suitable to a farmer. The raw material is in his hands, as it were, the machinery is simple and so cheaply made that it is within his means, the working requires no considerable training, the whole family, old men, young men, women, boys and girls can all together be engaged on the several processes. The working is not bound up with special periods or seasons and the market for the finished product is in the farmer's house itself. Whenever and whatever outside help may become necessary is so small that Government or local bodies can render it without any difficulty. Of similar importance are the industries of poultry keeping and sheep and cattle rearing on a very limited scale under present circumstances. All these will add to his food supply; the two latter will supply him with the manure his field wants and the last will also provide him means of draught for the cultivation of his lands. In regard to these the main question is the initial capital. Government ought to help him in the beginning with this capital.

All investigation must be directed to make the implements and appurtenances of these industries give more work than at present with the same amount of labour.

Carting is to some extent a bye industry of the farmer. Much of it has already gone through the introduction of the railway; what remains is destined within a very short period to be taken away by the motor lorry.

QUESTION 18.—AGRICULTURAL LABOUR.—There is no surplus agricultural labour, nor is there shortage of such labour except in the harvesting season. Such shortage or dearth prevails all over the world in harvesting seasons.

Land development schemes entailing migration of labour can only be undertaken by capitalists, or by Government in its function of the largest capitalist. The problem cannot be solved by the farmer by himself.

QUESTION 19.—FORESTS.—The present tendency of the forest laws and the execution of those laws is to discourage grazing in forest lands. The fees that are levied and the grazing permits that are granted are hedged round with such conditions as to bring about a discouragement to grazing. What the farmer wants is the facilitating of grazing permits. He does not mind the fees so much as he objects to the unsuitable conditions, though he knows that in old times free grazing in the forest was his right.

The farmer must have some source of cheap fuel in order to enable him to apply the cattle dung to the land which is so much in need of organic manure. The only possible and the nearest source of fuel is the forest. Some arrangement is therefore necessary to open this source to him. He used to get free fuel from forests long ago and there is no reason why it should not be made available now. The present forest policy must be changed. Safeguards can be adopted against destruction of timber growth.

In India, to increase the grain crops means, in addition to other things, to increase the material for fuel as a substitute for cow-dung, as the stubble could very well be used for fuel.

To increase rainfall and to decrease erosion as well to help saturation of moisture in the subsoils, also to prevent silting up of rivers, afforestation is an absolute necessity. But the forest policy must be changed. The Forest Department ought not to be considered as a revenue-making department but as a department to help agriculture from all points of view.

QUESTION 20.—MARKETING.—(*a*) The existing market facilities are satisfactory under prevailing conditions, from the point of view of the farmer.

(*b*) The systems of marketing and distribution are not satisfactory and they will remain what they are until the cultivator knows and can arrange his own transactions, by himself or through co-operation.

The questions of selection of quality, purity, grading or packing of agricultural products are not so critical in Indian marketing conditions to-day. In fact, they do not, under present circumstances, directly affect the small farmer. If these questions ever arise, they arise in the case of cotton and certain other crops that are exported. But those engaged in the export trade are taking the necessary steps and gradual development is taking place where necessary. The exporter is an intelligent and literate man and he tries to keep himself up to date with regard to all the marketing necessities of his trade.

If there be one important point which affects the marketing or the small commodities of the farmer, it is the question of making the weights and measures of the whole country uniform, arranged on a simple basis to which the farmer can be easily accustomed.

QUESTION 22.—CO-OPERATION.—The present necessity of the farmer is that he should be freed from the burden of accumulated debts and should have access to the capital required for the every day purpose of agricultural operations from a cheaper temporary source. It is Government alone that can supply those wants. Government should raise these funds by subscribing a part itself and by inducing the capitalists to subscribe under Government guarantee. These funds should be divided into two channels, (1) for reducing the existing accumulated debts, (2) to provide money for every day agricultural operations.

Both these should be handed over to societies (co-operative in their fundamental principles).

Repayment of loans by the farmer is only possible if farming pays. To make it paying is the responsibility of all research work which is to be undertaken in earnest by the Agricultural Department. Further development will come of itself in its own time.

QUESTION 23.—GENERAL EDUCATION.—The subject has been treated, as far as necessary, under agricultural education. The time for compulsory education has not yet come as it has not been asked for. It will be asked for when the economic condition of the farmer improves.

QUESTION 24.—ATTRACTING CAPITAL.—Indian agriculture to-day is not a paying proposition to a large capitalist. The industry is for him who is owner of his fields and the labourer on it at one and the same time. However, agriculture, like all other industries, cannot flourish without

capital. The capitalist has therefore a place in the economy of Indian agriculture, but it is only as a financier, a constituent of agricultural banks, land mortgage banks etc. In the capacity of a financier he can profit himself and benefit the farmer also.

The reasons why landholders do not effect improvements on their fields are the poverty of the farmer and the danger of the improvements being so taxed as to deprive the farmer of all profits accruing thereform.

QUESTION 25.—WELFARE OF RURAL POPULATION.—Until and unless the economic condition of the farmer is ameliorated, all attempts at improvements on the hygienic and such other sides will prove a complete failure.

An economic survey is an absolute necessity. Such a survey should be at the expense of Government but should be solely conducted by representatives of the people, a majority of whom should be representatives of agriculture.

Oral Evidence.

50,439. *The Chairman*: Mr. Nagpurkar, you are here to speak to the note of the evidence provided on behalf of the Union Agency of Bombay and Poona?—Yes.

50,440. Do you wish to make any statement or to make any corrections at this stage, or may we ask you some questions?—I have to make a few additions in some places; I wish to add a supplementary paper to the question on fertilizers.

50,441. You can hand in your supplementary paper;* meantime we will proceed with the note as it is before the Commission. Would you give us an account of the functions of your association? What does your agency do?—They deal in fertilizers.

50,442. Is it a commercial concern?—Yes.

50,443. Limited liability?—It is a proprietary concern.

50,444. Have you, as a firm, carried out any experiments in the use of manures?—Yes.

50,445. Have you carried out those experiments on unirrigated land?—Yes, in the case of *bajri*.

50,446. With what results?—I have a copy of a statement with me here; it contains just my own observations, and I shall hand it up to you.*

50,447. Where were these experiments carried out?—On our own experimental farm which is situated in Poona.

50,448. Are you in touch with the Agricultural Department?—I have been a student of the Agricultural College. I got my degree there and have worked with Dr. Mann for five years in the potato tract.

50,449. In what capacity?—As a co-worker. My firm sent me to work with Dr. Mann for five years, on potatoes only, and then after that I went back.

50,450. What do you say about the training in the Poona Agricultural College?— As for the college training it is good enough no doubt, but there are many defects that I have found cropping up from my own personal experience. After taking my B.Ag. degree I went to work in the potato tract; I thought myself to be a teacher of the cultivators there, but within two months I found that, instead of being a teacher, I had to look upon myself as nothing more than a student. There were so many things to be learned from the cultivators themselves. I worked for six

* Not printed.

months among them, learned their difficulties, learned what they wanted, and then I came back to the college and laid my problems and the problems of the cultivators before Dr. Mann who was the Principal of the college, and, for a further period of one year, I tried to apply all the science I had studied in the college to solve the problems raised by the cultivators, but it was not until two years later that I was able to begin solving the problems gradually. It was only then that the cultivators took me to be their teacher. I worked for two years more among them and wherever I went I was treated as though I were a doctor of potatos. I was nicknamed " doctor of potatos," and they followed me wherever I went.

50.451. In answer to our Question 4, on page 368, you say: " The railway and steamship administration look to the export and import side only. They appear to be quite unmindful of the fact that they owe an obligation and a duty to the agriculture of the country which has helped to their creation as well as their maintenance. The angle of vision must be changed." Let us take the steamship companies. What do you suggest the steamship companies ought to do?—My company has very little to do with steamships; I can only talk about railways.

50,452. What is your suggestion then with regard to the railways? Do you suggest that they should not look to export and import?—I shall tell you our difficulty. We sometimes have to import ammonium sulphate, both from Tata's works and also from outside. When we import it from Tata's to Bombay we have to pay Rs.25 per ton as freight charges; but when we import it from England or any other foreign country the charge is only Rs.9 to Bombay. For nearly 13 years we have been trying our best to see if we can get the rates reduced and although I am glad to say that the railways have reduced the rates from Rs.32 to Rs. 25, I consider that the rates should be reduced still further. If we compare the rates for manganese or coal, we will see that there is room for still further reduction in the case of sulphate of ammonia. I consider that the rate could very well be brought down to something like Rs.10 per ton. This would be not only to the benefit of the cultivators, but also of the railways themselves because there will be increased production and increased exports outside the country as well.

50,453. One of your suggestions under the heading of Finance, Question 5, is that Government should place further funds at the disposal of the co-operative societies so that the co-operative societies may provide agriculturists with credit. Is it your view that the spread of co-operative credit societies in the Presidency has been hampered or limited by any lack of resources at the disposal of Central Banks or Apex Banks?—No, they have sufficient funds; but they can supply to cultivators only the current capital for farming, they cannot supply funds for the debt capital.

50,454. What you are concerned to do is to provide long-term loans?—Yes, that is most important.

50,455. There are one or two questions on your answer to our Question No. 10, on the subject of fertilisers, which I should like to ask you. In your experience, are the crops to which fertilisers can profitably be applied limited in number?—No, there are so many different crops, mostly garden crops, but the question of dry crops is yet to be studied. But I hope that methods will be found by which even dry crops can be fertilised properly; it is a question which has got to be studied very thoroughly.

50,456. Have you studied the problem in relation to wheat at all?—I am sorry I have made only two experiments.

50,457. You have not probably reached a stage in which you would be prepared to say anything definite about wheat?—No, nothing definite; irrigated crops are in a different category.

50,458. What about sugar?—Yes, I have studied it.

50,459. And cotton?—That also.

50,460. And you have told the Commission that you have studied the problem in relation to *bajri*. Can you say, at this stage, that it would pay the small cultivator to apply manure to his *bajri* crop?—Only provided he is sure of getting sufficient rainfall and in time; otherwise it would not.

50,461. So that by putting further money into fertilisers he is to some extent increasing the risk?—No.

50,462. Surely he is; if he has a bad season, he loses more?—No, he does not apply fertilisers for his dry crops. Generally he has to spend nearly Rs.10 per acre if he is going to apply fertilisers at all in addition to organic matter, and, at any rate in the case of ammonium sulphate, I can say this much that it will not pay.

50,463. He does not use ammonium sulphate for *bajri*?—No, we are making experiments.

50,464. You have not reached the stage when you can give the Commission any further advice on the matter?—No.

50,465. *Dr. Hyder*: I should like you to explain how you have arrived at this estimate of the total quantity of cereals produced in India and the requirements of the people; have you compiled this from official sources, or is it based on your own statistics?—From many sources, including official sources; I have been a student of the college, studying all these things.

50,466. Do not you think this calculation of the total requirements of the population errs on the side of excess?—No, I will tell you how I arrived at that figure. The population of India is more than 30 crores, but I took it at 30 crores; I take the ration as being 2 lbs. per day for 365 days. That is the way we usually find out the total requirements. The total amount of grain required comes to about 10 crores of tons. Then, taking one pair of bullocks for 20 acres or per family of five members, and one cow per family, along with a certain number of calves, &c., at 3 lbs. of seed grain ration per head per day, the total amount of grain required comes to about six crores of tons for the cattle.

50,467. Then the total requirements of man and beast would be 16 crores?—Yes; it comes to about 16 crores; but in India we are only producing eight crores.

50,468. Do not you think this 2 lbs. is excessive?—No.

50,469. It includes men, women and children?—Yes, from the child to the old man.

50,470. Surely you eat more than you used to?—My countrymen eat 3 lbs.

50,471. Your child does not eat so much as you do?—No, but he has to suck and therefore the mother has to eat more.

50,472. Perhaps a doctor might help you with regard to this estimate?—No, I have taken all the estimates after consulting doctors.

50,473. Have you ever served in the Territorial Army?—No, I have taken these estimates from the jail rations.

50,474. People eat other things besides grain?—I take it that grain means everything: rice, bread, *juar*, all solids.

50,475. Where did you get the estimate of an income of Rs.50?—Many have declared it to be Rs.40 and I have taken Rs.50.

50,476. Is this your own or is it based on somebody else's work?—It is somebody else's.

50,477. Whose work?—I am sorry I cannot say just now.

50,478. Suppose I were to ask you to estimate the total agricultural production of your Presidency, would you do it?—Not without referring to the books.

50,479. It is not such an easy matter?—No; I could not do it on the spot here, but I could do it after calculating the whole thing.

50,480. You say that an increase in the number and quality of the cattle is one of India's very important problems?—Yes.

50,481. Do you attach any importance to the increase in the number?—Increase in number and quality combined.

50,482. Do you attach any real significance to this first statement about the increase in number?—Yes.

50,483. You want more cattle in India?—Yes, of good quality.

50,484. Quality is a different matter?—Yes.

50,485. You can have one pair of bullocks doing the work of ten?—Good and efficient cattle.

50,486. Under "Administration" you say: "Veterinary science, as it has come from the West, is unsuited to Indian needs." Is there any difference as regards diseases?—Yes.

50,487. Does rinderpest in India differ from rinderpest in other countries?—No, but the question of tropical diseases is quite different.

50,488. Are tuberculosis and foot-and-mouth disease different?—I am going to explain my position so that I think I can make you follow it. I know a little about England; generally the horse is the most important animal there; in India cattle are the most important. I say this from my own experience: when I was studying in the college I learned many things about horses, but when I began to move about among the cultivators I found there were no horses.

50,489. Confine your remarks to the cattle. Have we any science, art or system of treating cattle? Have we any specific remedy against rinderpest?—I do not know.

50,490. Do you own cattle?—Yes.

50,491. Have you ever had cases of foot-and-mouth disease?—Yes.

50,492. And did you send for those old doctors?—No, for the foot-and-mouth disease we have indigenous remedies.

50,493. In my own place I have seen any number of cattle dropping; we sent for these people and they simply put smoke into the cattle?—There are men who know what to do with foot-and-mouth disease and the animals recover easily.

50,494. You compare the old *Joshis* with the modern meteorologist?—Yes.

50,495. Are you seriously putting forward these things?—Of course I am; no doubt it is the empirical method.

50,496. This is in spite of English education for the last 100 years?—No, not at all; it originated here; everything originated here.

50,497. These humbugs tell the people in the village that they are going to give them rain in 30 days, but after collecting alms they go to another village and nobody hears of them again?—Every village had its own *Joshi*; I do not say they succeeded every time, but they tried to predict.

50,498. They tried to predict by spiritual means and not by the collection of data?—No, not at all, not by spiritual means; everything is based on mathematics.

Then I leave you to your opinion.

50,499. *Sir Chunilal Mehta*: You have had special experience in manures? —Yes.

50,500. In your paragraph on fertilisers you say nothing about night soil, poudrette?—I say it should be encouraged.

50,501. That is in your supplementary note. Have you had any experience of this?—No.

50,502. Is it now being used much more than it used to be?—In Poona there was once a time when there was no demand for poudrette, but now not a particle is left.

50,503. As a matter of fact, the Municipality is making a good bit out of it?—Yes, it is.

50,504. Is there any scope for expansion in this direction?—Yes, in every town.

50,505. Is it possible to do something in the villages?—No.

50,506. Has that question been examined?—Not examined, but, as far as I know the villages, it would be very difficult for villagers to go to one privy for these purposes.

50,507. But the old prejudice against it is gone?—Yes, there is no prejudice.

50,508. Your particular experience was with sulphate of ammonia?—Yes.

50,509. Were you associated with Mr. Modak from the commencement?—Yes, from the commencement.

50,510. For how many years did you try this sulphate of ammonia?—More than 13 years.

50,511. Did you get any assistance from the Agricultural Department?—Every kind of assistance.

50,512. Why is it, then, that sulphate of ammonia has not been taken up?—It is slowly increasing now; it took us more than 10 years, in the initial stages, to make a proper demonstration of it, but now it is slowly increasing. At least, in the case of sugarcane it is slowly increasing, but there is much scope for it now.

50,513. It is now a paying proposition?—Not to a big firm, but it is to a small business man; if there be only one man who will import it and sell it off with no big institution at his back, then and then only it pays; in our case we have a big propaganda going on, we are carrying on the business and it pays.

50,514. I thought it was a very costly experiment?—Yes, very costly; we have spent more than 4 lakhs upon this in 14 years.

50,515. After that experience, are you now in a position to advise the cultivators that it is a very suitable manure to use?—Yes, we now have authority to say these things, and the cultivators accept it.

50,516. Is it a question of reduction of cost for the cultivator?—Yes, because in our own experience we found after the war prices were adjusted a little, the price of ammonium sulphate was lowered and the business extended at once. During the War time it was very costly: more than Rs.400 per ton, and the cultivators were not in a position to buy it because at that time cake was sold at a lower price.

50,517. Sulphate of ammonia is used largely on sugarcane?—Yes.

50,518. It is not used for other crops?—No, not yet.

50,519. Do you expect it will be used for other crops?—Yes.

50,520. For what crops?—For onions and all kinds of garden crops.

50,521. There is not much production of these garden crops?—Comparatively little.

50,522. For dry crops it would be very risky for the cultivator to use any kind of manure?—The use of organic manure is not risky, but the use of chemical manures is risky.

50,523. Is more oil cake being used now than before?—Yes; they are now using properly balanced mixtures, and it pays them well.

50,524. You say the most important source of moisture is the retention of moisture. Supposing schemes were carried out to retain the moisture that comes through rainfall, do you think the cultivators will use manure without hesitation?—At least they would be inclined to do so.

50,525. Would it be safe if they did so?—Yes.

50,526. Have you seen any case where moisture has been conserved?—Yes; near Manjri farm the Government is conducting experiments, but the results are not ripe enough to be published.

50,527. Have you seen *tals* being made?—Yes.

50,528. Will they retain moisture?—That is one of the ways, but that alone will not do.

50,529. Will the construction of *tals* enable the cultivators to use manure?—Yes, any bulky kind of organic manures. If they apply organic manure after the *tal* is made, then they would be safe.

50,530. Doing this will also improve the productivity of the soil?—Yes.

50,531. Because it will induce the use of manures by the cultivator?—By the use of organic manure and *tal* building they will get benefit.

50,532. On page 372, you talk of subsidiary industries, and you mention spinning and simple weaving. Have you had any experience of spinning?—No.

50,533. Have you seen what benefit it gives?—It does not pay: I know that.

50,534. Then, why do you recommend it?—Because that is the only thing open to the cultivator. Under the system of dry cultivation he has to be idle for many months; without any subsidiary industry, the dry cultivating family will not be able to maintain itself. In some way or other a subsidiary industry should be supplied to him, otherwise there will come a time when there will be no farming at all in those areas.

50,535. You have no personal experience to say whether spinning will supply the need or not?—I am very sorry I have not had the time to study the question. I will only say one thing, that if the cultivator is to live on his farm all the twelve months in the year, he must be given a subsidiary industry. That is the case so far as the Deccan is concerned.

50,536. You have no personal experience of it; I want to get some data?—I have no data to give.

50,537. You say you studied the problem of the use of sulphate of ammonia, in the case of garden crops, and especially sugarcane, and it cost your firm 4 lakhs of rupees, and you say that you are satisfied that the cultivator can use it with advantage. What would you recommend to be done in order to spread its use, with profit both to the cultivators and to the firm selling it?—The question of profit to the firm is quite a different thing. So far as the cultivators are concerned, they know that, if they use sulphate of ammonia in a properly balanced mixture with oil cake and farmyard manure, they will get a better yield of sugarcane.

50,538. They know that it pays them better than the use of simple farmyard manure or oil cake?—Yes; they see it.

50,539. Nothing further requires to be done?—In certain tracts.

50,540. *The Raja of Parlakimedi*: Are you running your own farms?—We have our own experimental farms, not only in Poona but in many districts outside. We get the cultivation carried on in the cultivator's own field with his own hands, and we follow the thing from the beginning to the harvesting time.

50,541. Is it entirely to see the effect of fertilisers?—From my point of view, that is the only purpose.

50,542. Are you interested in cattle?—Personally, I am no doubt interested, but the agency which I represent are only interested in fertilisers. Of course, as a student of agriculture I am interested in cattle.

50,543. In these farms, do the cultivators pay any attention to their cattle?—It does not pay the cultivator to breed cattle now.

50,544. Why?—The most important difficulty in his way is the fodder question.

50,545. What is the difficulty in getting fodder?—They cannot grow sufficient fodder themselves, and it does not pay them to buy fodder and feed their cattle.

50,546. Have you got any *gaocharans*?—In the Deccan there are none as far as I know. Of course, I am not positive that there is not a single one.

50,547. What are the sources of grazing in the Deccan?—In the Deccan the rain falls only for two or three months in the year and whatever rainfall there is is precarious and uncertain. Many a time the seasonal rainfall fails and the crops do not grow properly. In the Deccan failure of crops means failure of fodder also, because there is only one crop in the Deccan which supplies three needs, food for human beings, fodder for cattle and fuel for the villagers. Therefore, we do not get sufficient fodder for our cattle, with the result that the cattle have become lean and unfit to work, although I am not in a position to say that they have decreased in number.

50,548. Are there no waste lands?—In the Deccan there is not sufficient waste land; most of the land has been occupied.

50,549. What is the rainfall of the area?—The average rainfall is from 15 to 20 inches.

50,550. Cannot the cultivator grow sufficient fodder for his cattle during the rains?—There is no separate fodder crop here.

50,551. But can they not grow sufficient fodder when they have 15 inches of rain?—The rainfall is not properly distributed.

50,552. Have you no irrigational sources, such as wells?—In the Deccan they have not many wells, and wherever they have wells they are used for growing food crops and not fodder crops.

50,553. Then what sustains the cattle?—The poor fodder that exists. The cattle merely live.

50,554. So this degeneration of cattle is not entirely due to the export of oilcakes?—Owing to the export of oilcakes, it has become dear and the cultivator is not in a position to buy it and feed his cattle. I am talking here always about the Deccan.

50,555. He gets good prices for his oil seeds?—Yes.

50,556. *Sir James MacKenna*: Talking about your experience of the Poona Agriculture College, had you any practical training in agriculture before you went there?—No.

50,557. Do you think if a boy went there with practical training he would get on better?—At least on the technical side.

50,558. You were handicapped without the practical training?—Not I alone, but everybody else. The Agricultural College, as far as I know, is not specially strong on the technical side.

50,559. Is it weak on that side?—What I mean is we have to learn too many sciences in the course of three years, and we have to pick up as much as we can during that short time. The course must extend for a longer time.

50,560. You think it is a good practical course?—Yes.

50,561. *Mr. Calvert*: Let me take you back again to the requirements of the population. You say 100 million tons are required. Have you not made the mistake of taking the adult diet and multiplying it by population?—I have consulted many persons, and I learn that on the average they take 2 lbs. per head.

50,562. Who takes 2 lbs. per head?—As far as I know, the cultivator's ration is taken to be 3 lbs.

50,563. Who takes that?—I am sorry to say offhand, but I have taken it as 2 lbs. on the average.

50,564. You are taking that for the adult?—It is per head of the population.

50,565. You know what the jail ration is per adult?—I think they give there nearly 2 lbs.

50,566. It is 12 *chattaks* for adults, for hard labour 14 *chattaks*. The Army ration is, for an adult soldier doing good work 24 oz., i.e., 1½ lb. If you take your figure for adults, and then allow for the children, you find that you exactly double the population requirements; 50 million tons and 100 million tons. Do you accept that?—I am very sorry I cannot say anything more in the matter. But I can say that though the child does not eat so much, at the same time it sucks; it means that the mother has to support it. Though the child seems not to eat anything, it has to feed upon the mother.

50,567. In your budget, you talk about the requirements of grain. What is that?—It means all solid food.

50,568. You are giving, as an average for the whole population, something like 30 per cent. higher than the Army ration for an adult?—I shall get myself corrected.

50,569. It is higher than the jail ration for an adult. There are boarding houses, hostels for students and mental hospitals, and applying the average of all those, the requirements work out at 50 million tons and not 100 million tons. You have just doubled it?—I can change the figures. My object is to show that more grain is required, and still more grain is required for feeding the cattle. Feeding the cattle means giving sufficient milk to the men. The most important problem in the Deccan, throughout India even, is the grain problem under dry conditions. That is the object there.

50,570. What exactly, do you think, are the improvements to land which are not being carried out owing to lack of capital?—As far as permanent improvements are concerned, I do not think the cultivators, at least in the Deccan, can do anything now. They have come to such a crisis that they are not in a position to spend any money.

50,571. Assuming the money were available, what improvements could he carry out?—The first improvement will be *bunding* and levelling, then, if possible, digging a well; in short, everything which can conserve the moisture.

50,572. A well depends on subsoil water?—Yes. I think, now, the boring question has come in and the pumping question has come in. At least,

in some cases, we have found that by going deep, down to 200 feet, we get water in some places. That problem ought to be studied first. For that purpose, I am glad to say Government has appointed a water finder.

50,573. You say that the capitalist is unwilling to invest his money in agriculture?—Yes.

50,574. He is investing his money in land?—If the owner himself be a capitalist, he may invest his money in the land. But as a banking business he finds it insecure to lend his money to the cultivators and make a business out of it.

50,575. Do not the moneylenders here want to buy the land?—They are forced to buy the land. Circumstances force them to it; they are not after lands.

50,576. Do not the capitalists here want to buy land?—In the cities they do not want to buy land now. There was a time when most of the city men who had surplus money wanted to buy land, but that is not the case in the cities now.

50,577. We have been told that there was a great grievance on the part of the capitalists that they were not allowed to buy land in some Provinces? —At least in the Deccan, city men do not want to buy land now. There was a time when they used to do it.

50,578. Can you suggest any amendment of the curriculum at the Poona Agricultural College, which would make it more valuable for the ordinary cultivating classes?—As for adult agricultural education, most of it must be oral and on the demonstration farms. For the cultivator's son, the department is slowly opening some vernacular agricultural schools, and by and by the sons will be coached there. The most important problem is to coach the adults.

50,579. How would you do that?—The better method is oral instruction on the farm which he cultivates himself, by demonstrating improved methods. That is the only way possible.

50,580. *Mr. Kamat*: You say there was a tendency, some years ago, for city people to invest in land but now the city man does not care to do so. Why is that?—Now, city men find it better to lock up their money in the co-operative societies. Co-operative societies have come to such a position now that most of the city men like to invest their money there; they hand over their money to the co-operative societies, and they are quite satisfied.

50,581. In other words, they were at one time seeking a reasonable rate of interest, from 6 per cent. to 9 per cent., whereas now they think that they can get that reasonable return from co-operative societies?—Yes.

50,582. Beyond that there is no land hunger?—Not really.

50,583. Talking about administration, you say: "The Agricultural Service, as it is at present constituted, is not "in tune with the agriculturist because the habits of living, the training and the technical education of its members do not quite harmonise with the modes of life, the eccentricities and the receptivity of the Indian farmer." Does that apply to the Indian element in the Agricultural Service?—It applies to both. My experience is that there are some men who are better trained, and they can come into contact with the cultivators in a better way now, and confidence is being created; but there is not yet full confidence.

50,584. Is it your complaint, then, that even the Indian element in the service does not enter into the heart and life of the farmers?—To enter into the spirit of the cultivator is an art, and a man can pick it up by experience. Some may have it naturally, but most men can get it only by experience. It is very hard to enter into the spirit of a cultivator and to know what are his wants, and where he wants reforming.

Mr. S. D. Nagpurkar.

50,585. You have been going round amongst the cultivators for the last 10 years. What is it that these men in the service fail to study?—From the technical point of view, the cultivator himself is better than any of us trained in the Agricultural College, but from the scientific point of view we are better. How to apply our science to their needs and to remove their difficulties is a very difficult thing. The application of science on the farms of the cultivators themselves is very difficult, and a man picks it up after long experience.

50,586. To a certain extent, this sort of tendency is unavoidable; it is a matter of experience?—Of course.

50,587. You are in favour of an enactment similar to the Fertilizers and Foodstuffs Act of England, to prevent adulteration of fertilizers?—Yes.

50,588. Which means that, in your opinion, adulteration is going on?—There is no adulteration as far as I know. But somebody may do it, and it is safer to have a law.

50,589. You deny that there is adulteration?—As far as I know, there is none.

50,590. Do you mean to say that there is no complaint from the consumers that the stuffs supplied to them are adulterated?—Sometimes petty merchants may play a false part, and some complaints come to us. We go there on the spot, see what are the difficulties, and we get them removed, and most of them are satisfied. In the case of fertilisers, to send a bag from the manufactory direct to the farm itself is very difficult. Many times it has to be stored somewhere. Then the petty customers buy a few bags, and they take them to their own shops.

50,591. Suppose you distribute it from here in Bombay ,and send down bags to a particular district. You deny that there is any adulteration here?—There is no adulteration at all.

50,592. By the time the farmer receives his bag, there is adulteration?—One more favourable thing has come in. Co-operative societies now come in and buy it.

50,593. That is so far as the remedy. I am trying to locate who actually does the adulteration, and where?—Some petty men. I do not think any merchant is doing it for the present.

50,594. If no merchant is doing it, why do you want the Act?—A question has been asked, and if at all some remedy has to be suggested, I suggest the passing of a law; it is safer.

50,595. Have not you heard the universal complaint that there is a good deal of adulteration going on?—No.

50,596. No complaints in the course of your experience of 10 years as distributors?—None at all.

50,597. You say that the only way to discourage cow dung as a fuel is to supply "some other" fuel. Could you explain the meaning of that sentence?—Other fuel means wood; that would be the first thing. The cultivator has to be encouraged to grow plants which he is not in a position to do now. At the same time, in some way or other the forest policy should be in favour of the agriculturists. I have suggested one remedy under "Administration," that the Forest Department, instead of being considered as a separate department, should be handed over to the Minister of Agriculture.

50,598. Have you any complaint to make about the grazing fees which are charged by the Forest Department?—No.

50,599. Are they reasonable?—Yes.

50,600. What are the present fees for grazing?—I do not know the exact figures, but I do not think they are too high.

50,601. You do not know the exact figures?—I am very sorry. The cultivators were used to getting free grazing and now they complain because they have to pay for it.

50,602. Let me tell you the present grazing fee is 4 annas per animal per annum in almost all the districts of this Presidency?—It is not too much.

50,603. In some districts it is 2 annas?—Even 4 annas is not too much.

50,604. What is it, then, that is to be remedied?—The thing to be remedied is that when the forest officers and the ryots come into conflict, whenever there is any kind of a dispute, if the forest officers will look on the ryot as a poor villager, I think there will not be much trouble. Generally, what happens is this, that the ryot does not know how to approach the forest officers. Sometimes stray cattle, being after all cattle, go there and the ryot does not know how to approach the forest officers. That gives rise to disputes. The spirit should be changed a bit.

50,605. Is that all you want?—Yes.

50,606. Speaking about veterinary matters, you say in your note: "India possessed at one time the most highly developed veterinary science." You mean the anatomy of the cow was known then?—No; anatomy was known but not so thoroughly as now.

50,607. Injections of sera?—That is quite a new thing.

50,608. When you say, "the most highly developed" science, what do you mean by it?—It was the most developed science as far as the application of remedies at that time was concerned. So many new diseases have now sprung up because cattle have become too weak to resist them.

50,609. In the olden days they knew certain simple remedies for certain diseases. That you describe as the most highly developed science?—Yes, as far as those times were concerned. My point is this that the reformation should be made in the line of the Indian veterinary science; it should be reformed with the aid of western science; it should be improved.

50,610. *Dewan Bahadur Malji*: Do you know of any Indian literature on veterinary science?—I am not a Sanskrit scholar, but I know there are some excellent books in Sanskrit which deal with the horse, elephant and cow.

50,611. You do not know their names?—No.

50,612. With a view to see whether, from your point of view, agriculture is a losing concern, may I know how much land you yourself own?—More than 50 acres.

50,613. Does it pay or not?—Agriculture per acre pays, but per family per year it does not.

50,614. In any case from your point of view it is a losing proposition?—I must consider it on the per family basis. It is a losing concern per family for the present under Deccan conditions.

50,615. Then, with the assistance of these fertilizers you do not seem to think that, per family, it would yet be a paying proposition?—In the case of garden crops it is a paying proposition per family.

50,616. A family may consist of a good many souls. What is the average?—Five persons.

50,617. What is the minimum dry-holding which a man should possess to maintain a family of five?—At least 20 acres, in the Deccan.

50,618. You told Mr. Kamat that grazing fees do not come to much and that before the passing of the Act it was free?—Yes.

50,619. Do not you think that the absence of free grazing has added to the cost of keeping animals?—No, I do not. There should not be free grazing.

50,620. You said that capitalists were not now inclined to invest in land?—Yes, because they think that they get better returns elsewhere.

50,621. May I know if the word "capitalist" that you have used is as distinguished from village landholders?—Yes.

50,622. That is not a sure test of success?—No.

50,623. I gather from your note that you are more in favour of food crops than commercial ones?—First, they should have food crops and then commercial crops.

(The witness withdrew.)

Mr. B. R. RANSING, B.A., LL.B., Hon. Secretary, Dhulia Taluka Agricultural Association and Member of the Divisional Board of Agriculture, North Central Division, Bombay.

Replies to the Questionnaire.

I have been Secretary of West Khandesh District Agricultural Association from 1914 to 1922 and Secretary of Dhulia Taluka Agricultural Association from 1925 to 1926. I am a member of the North Central Divisional Board of Agriculture and Co-operation. I am an agriculturist and a member of Dhulia Municipality and Dhulia Municipal School Board. I am also Honorary Secretary of Khandesh Divisional Branch of the Bombay Central Co-operative Institute.

QUESTION 2.—AGRICULTURAL EDUCATION.—In the North Central Division of Bombay Presidency comprising three districts, viz., East and West Khandesh and Nasik districts, there is only one agricultural school, at Dhulia, which provides education for grown up boys of the agricultural classes. This school was started in 1922 at the request of our agricultural association which has been pressing this necessity before the Government since 1918. In 1922 the school was opened here by Sir Chunilal V. Mehta, then the Minister of Education of the Bombay Presidency. Unlike similar schools stationed at some other places, the arrangement for boarding are in the hands of a local committee that collects the necessary funds for the purpose. At the beginning West Khandesh District Local Board paid Rs.1,000 and Dhulia Municipality paid Rs.500. Funds are collected from the Local Boards of the three districts, some Municipalities, agricultural associations like our association, and the David Sassoon Fund. Thus during the last four years, the local committee has been able to collect Rs.10,940 towards defraying the boarding charges. The number of students receiving this education were 10 in 1923, 22 in 1924, 29 in 1925, 32 in 1926. Out of 19 students turned out, seven students have taken to private farming, 10 students entered into the Agricultural Service, and two students have entered into other services.

The Government is responsible for the necessary staff and the education of the boys. The standard of admission of the students into this school is higher that what is usually found in agricultural schools. Students who have passed the sixth and seventh standard of the vernacular schools are admitted. This raising of the standard has certainly been successful in enabling the students to grasp the subjects taught. The total strength of the students in this school for the two years has been limited and cannot be more than 30 students each year, for want of adequate funds. A number of applications have to be rejected every year. In our opinion, every district should have an agricultural school fully supported by Government and equipped with all the necessary facilities. As the finances raised by local

efforts every year cannot be guaranteed to run the boarding charges, it would be necessary for Government to give all the financial assistance needed. Local effort would be active in inducing the right type of students to take up the course.

As regards agricultural bias schools, the number at present existing in all the three districts of West and East Kandesh and Nasik is only six (one in West Khandesh, two in Nasik, and three in East Khandesh). This number is infinitesimally small. Such schools should form the basis of any scheme for rural reconstruction for the imparting of agricultural knowledge.

The ideal to be aimed at in agricultural education should in our opinion be as follows:—

(1) Ordinary primary schools with agricultural bias.

(2) The provision of agricultural subjects in secondary schools.

(3) The provision of higher agricultural education in special agricultural colleges.

The supply of teachers and institutions is inadequate in our district. There is only one school with an agricultural bias in our district. There is an urgent need for extension of teaching facilities in our district, which is backward in respect of education. The need for more agricultural bias schools is keenly felt but more schools of this type could not be opened for want of funds and trained teachers. There is also the difficulty of securing land for such schools and unless the revenue authorities heartily co-operate with the Local Boards in giving facilities to such schools, the growth of such schools will be impeded. To meet the difficulty in regard to the supply of teachers, the agricultural school at Dhulia may be utilised for giving special agricultural training to teachers, so that a sufficient number of teachers may be found to run agricultural bias schools in the three districts of our Division. As a training centre with a rural atmosphere, Dhulia Agricultural School has the advantage of having a big model farm in which all varieties of cotton are produced and it is surrounded by farms of agriculturists.

Our opinion as to the question of drawing teachers from the agricultural classes is that this principle of limiting teachers to certain classes is unsound. We may mention that the headmaster of the only school with an agricultural bias in our district is a Brahmin and he has won the good opinion of all the agricultural officers. The principle rather and should be to stimulate the best brains and to get efficient teachers, be they from whatever class or caste.

We have already shown that the attendance at existing institutions is not at all numerous. On the other hand it is very meagre. By opening such agricultural bias schools in the district and opening special agricultural schools at district centres and by general propaganda, the demand for instruction of this type will greatly increase.

Practically, for the present, there are no inclinations which induce lads to study agriculture. In special agricultural schools, the right type of student is not attracted. Only those who cannot be expected to shine in ordinary schools are being sent to agricultural schools. The hankering after service, especially Government service, and the clerical education which is generally given in schools, are great impediments to the attracting of the best intellects to the agricultural schools. In our opinion, sufficient propaganda and a right type of agricultural education, which will be found most useful in after life in running private farms more successfully, will induce lads of good intellect to turn to agriculture.

The pupils generally are drawn from the agricultural classes. If agriculture is taught in village schools as a secondary subject, in course of time our opinion is that general improvement will follow.

The career of the majority of students who have studied agriculture from our Dhulia School, as we mentioned above, is service. This should not be, as our aim is to induce students to return to their private farms to improve them. But in the beginning the attraction of service to the ordinary type of student is very great, and taking into consideration the fact that such

ordinary students will not be capable of supervising their farms owing to want of confidence of farmers in present-day agricultural education which they now regard as "paper" or "theoretical" education, such a course is natural for some years to come until the best intellects are drawn to such schools.

Agriculture can be made attractive to middle class youths if the right type of education is given to them and if greater facilities are given to them in case of lands, capital, &c., as, for example, such youths should receive preferment by giving them Government lands on easy terms. In our district there are cultivatable lands lying fallow, and if such lands are given to such enterprising youths on favourable terms, our opinion is that middle class youths can be attracted to agriculture.

Adult education can be popularised by the following methods:—

(1) Village libraries.

(2) Magic lantern and cinema instruction.

(3) Night classes.

To prevent pupils from lapsing into illiteracy, which often happens, encouragement should be given for discussions, essays and other means. The use of magic lantern lectures and cinemas should be encouraged. In our opinion, such methods will encourage adult education. The Punjab Government has undertaken adult education on these lines and the results are encouraging.

In Khandesh the necessity of trained estate managers for managing the estates of big landholders has been keenly felt for years. It was thought that fresh agricultural graduates who came out of the Agricultural College were at first diffident in venturing upon such an enterprise and hence it was considered desirable to train suitable graduates for a further period of about a year. The Jalgaon farm was thought to be a suitable place for the training of such students. Free education and provision of free quarters were advertised by the Government, but no one took advantage of this opportunity. This may possibly be due to posts not being guaranteed by Government. So the difficulty has remained and fresh graduates cannot manage big estates. To remove such a difficulty, it would be necessary for Government to take some steps to foster post graduate courses by offering scholarships to suitable candidates and training them for a year or two under successful farm superintendents, with a view to satisfying the needs of big landlords.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—Our agricultural association was started on 13th September, 1914. The association was at first for the whole district of West Khandesh and it was converted into a Taluka Agricultural Association since 1923 when the new scheme of the Government of subsidising agricultural associations to the extent of Rs.1000 came into force.

The chief aims of our association were to develop the agriculture of the district, to introduce improvements, to hold demonstrations and shows, to promote agricultural education in the district and to help the extension of the co-operative movement.

The association carried on general propaganda in the district and restricted its activities to the Dhulia taluka, the main centre of the district. The association engaged a trained fieldman, and under the advice of the managing committee consisting of officials and non-officials, assisted by officers of the Agricultural Department, the work of the association was carried on.

During the last 12 years the following work has actually been done by our agricultural association:—

(1) In our district *bajra* is the staple food. Our association was able to introduce Akola *bajra* seed from Ahmednagar district into our district as this seed is found to be more useful to agriculturists than the various local seeds.

(2) In our district there was no fruit cultivation like oranges and *mosambis*, which fruits command a good market. Through the efforts of our association oranges and *mosambis* were introduced and the result is that now there are many agriculturists who are making good income from these fruits. In our district each orange or mosambi tree fetches an income of Rs.7 annually.

(3) The association was able to do good work by introducing increasing quantities of good *neglectum roseum* cotton and foreign ground nuts. Our district is mainly a cotton district and naturally improved cotton seed is in great demand. For want of sufficient financial assistance, our association could not cope with the increasing demand of seeds of *neglectum roseum* cotton and foreign ground nut.

(4) Our association was able to demonstrate the use and utility of iron ploughs, winnowers, iron motes in our district and specially in our taluka.

(5) Our association was able to introduce lucerne, and *sundia juar* from Gujarat as fodder crops in our district.

(6) Our association took up the question of agricultural education in 1918. Through the efforts of our association and by the sympathetic attitude of the Government, especially through the active support of the Honourable Sir Chunilal Mehta, the then Minister of Agriculture, and Doctor Mann, Director of Agriculture, our association was able to start an agricultural school at Dhulia in 1922. The school is for three districts, viz.: West Khandesh, East Khandesh and Nasik Districts.

Formerly all agricultural improvements were shown on Government farms. The agriculturists naturally were timid in taking up these improvements shown on Government farms because they seemed to think that these were achieved with the help of the illimitable resources of Government.

The best methods are to show these improved methods on ordinary cultivators' fields. Our experience shows that such field demonstrations, carried out on cultivators' fields, induce them to take up improved methods in agriculture. The ordinary cultivator must be convinced that by these improved methods he can get better income. It is also our experience that these improved methods should not be very costly otherwise they are naturally unwilling to take them up owing to the very limited means at their disposal. As an example, improved machines like a winnower which cost about Rs.200, and an iron plough which costs about Rs.25 are not in as great demand as they should be. The agriculturists are convinced of the usefulness of these machines but they cannot take advantage of them owing to poverty.

The effectiveness of field demonstrations is being hampered on account of two things. In the opinion of our association, an economic survey of the taluka, and financial help, will increase the effectiveness of these operations. The taluka must be first surveyed by experts and then it will be possible to carry on a definite programme of successful field operations; otherwise much time and energy are lost in carrying on haphazard programmes and field operations. An agricultural survey of the taluka is wanted with the object of ascertaining the immediate needs and wants of the cultivators. Such an agricultural survey by a Government expert was found very useful in laying down a definite programme by the agricultural association of Pachora (East Khandesh District). In the opinion of our association, such agricultural surveys should first be undertaken when an agricultural association is to be formed in a taluka. Unless such agricultural survey, followed by a definite programme is settled beforehand, no real progress can be expected. Our association has been urging the Agricultural Department to undertake a survey in our taluka for the last six years and though the department recognised the necessity of such a survey it was not undertaken by them, presumably as they had no sufficient staff to undertake it.

Mr. B. R. Ransing.

The second great difficulty is of finances. Our agricultural association has been maintaining itself on annual subscriptions from members. The annual subscription of our association is a rupee per year. The work of the association was carried on from 1914 to 1923 on subscriptions only, without any substantial help from Government. Since 1923 the Government has been paying an annual subsidy up to Rs.1000. The association collects Rs.1000 as subscription. In the opinion of our association, this system is not sound. In times of scarcity it is difficult to collect subscriptions, and when at such times the needs of the association are great, the existence of the association is at stake owing to financial difficulties.

In the opinion of our association, the subsidy of Government should be double the amount annually collected by the association. Under favourable circumstances the association should be allowed to collect a capital fund by levying a cess of one anna in the rupee of the assessment. By means of such capital fund, the financial stability of the association will be established. Unless Government comes to the help of the agricultural associations more liberally, our association is of opinion that under present circumstances no further progress can be expected in agriculture. Our association is also of opinion that the help of the revenue authorities is necessary to run the association. Our experience has shown that unless there is co-operation between officials and non-officials, no good work is done by such associations.

Our associations has recently undertaken to supervise co-operative societies in our taluka by appointing a trained supervisor. We are requesting the Government to give us further financial help and our work will be considerably hampered if the additional financial assistance is not forthcoming.

The main difficulties in inducing cultivators to adopt expert advice are financial difficulties. Unless the cultivator is assured that by adopting the advice he will get his due return, he is unwilling to undertake what he considers "an adventure." In the opinion of our association, a cultivator should be guaranteed a minimum income from the land which is set apart for cultivation according to the advice given by an expert; for example, if a cultivator is told that by giving sodium nitrate his cotton crop will be improved, we think he will readily accept this advice if he is assured that a minimum sum will be guaranteed to him if he suffers from such advice. Rewards to some of the best cultivators who do propaganda work may in some cases be an incentive to the cause of improvement in agriculture.

So far the taluka has been the unit of the development association; a lesser unit than this would, in our opinion, not be effective in increasing the efficiency of the work of the association at the present time.

As to the striking instances of the success of demonstration and propaganda work in our part, the instance of cultivation of foreign groundnuts in Khandesh district and the adoption of castor cake as a manure for cotton may be cited. The reasons of success, in our opinion, in these instances are that groundnut is a good rotation crop and can be grown as a *kharif* crop on rain water only. The land need not be rich land. Groundnut fetches good price and is even competing with cotton in price. As farmyard manure is getting scarcer every year owing to the decrease of cattle, and therefore dearer, the cultivators have found castor cake to be a good substitute and an even better manure than ordinary farm manure for cotton. In short, for demonstration and propaganda work, agricultural associations are the best medium for carrying improvements to the doors of farmers and every encouragement and financial help should be given them by Government.

Magic-lantern lectures and cinemas are also a good means of propaganda for increasing the effectiveness of agricultural improvements. A magic-

lantern lecture is always very instructive and attracts larger crowds than a mere ordinary lecture. Last year, under the auspices of the West Khandesh Branch of the Bombay Central Co-operative Institute, a tour of lectures illustrated by lantern slides was arranged. These were special agricultural slides prepared by Mr. V. J. Toro, Inspector of Visual Instruction, Bombay Presidency. The tour was a great success and attracted large audiences and invoked great interest. Our association has been urging upon the Agricultural Department the necessity for a magic-lantern and slides but our request has not yet been granted, again owing to the same complaint, viz., difficulty of finances.

QUESTION 20.—MARKETING.—Dhulia market is the biggest cotton market in West Khandesh district and during the cotton season thousands of cartloads of cotton are brought for sale every day.

The system known as the *adat* system prevails in the market. Under this system all business is transacted through middlemen, who are locally known as *dalals* or *adatyas*. The *dalal* simply finds a buyer for the cultivator or seller and settles the bargain between the two parties; he does not take responsibility for payment. Whereas the *adatya* not only finds a buyer for the seller and settles the bargain; he also undertakes the responsibility of payment and, as a matter of fact, actually pays the amount and settles his own account with the purchaser later on.

The cultivators are not actually debarred from settling their bargains direct with the buyers but owing to their ignorance of the prevailing rates and other difficulties, such as want of familiarity with weights, etc., they are likely to be deceived by shrewd merchants. Besides, in direct transactions, if any dispute arises there will be no suitable agency to settle the dispute. The agriculturist therefore prefers to sell his produce through the *adatya* and to pay him a small commission rather than run the risk of being deceived by shrewd merchants.

The carts coming from different parts of the district come to their respective *dalals* or *adatyas*. *Adatyas* sometimes advance money to agriculturists on condition that they sell their goods to them. After the terms are settled with the *dalal*, the cultivator then does nothing but simply guard his cotton cart. The *dalal* or *adatya* does everything for him. He takes a sample from the cart, shows it to intending purchasers, settles bargain with them, takes the cart to the ginning factory, gets its unloaded, weighs its contents and gives cultivator a slip of paper showing the details of the account. The cultivator takes the slip of paper to the *adatya's* shop and the *adatya* gives him the full amount and the cultivator goes home with his money. For all this trouble the *adatya* charges a commission of Rs.1-8 to Rs.2 per cart of raw cotton. In an average cart, about 10 maunds, i.e., 1,440 lbs., of cotton is brought.

As stated above, the cultivator does not sell his cotton outright to the purchaser nor does he ordinarily get it ginned and then sell it to any firm or *dalal*.

Sometimes big agriculturists, bringing a number of carts of their own produce, get it ginned when they find the market is too dull and too low. But even they do not generally get their cotton pressed into bales; they find it costly as their produce is not large. The ginned cotton has also to be seld through the *dalals*. For the ginned cotton the seller has to pay the *dalal* a commission of eight to twelve annas per *palla*, i.e., 3,200 lbs., and the purchaser in his turn pays six to 8 annas a *palla* to his broker.

There are many European, Japanese and Indian firms at Dhulia dealing in cotton. Every day they get telegraphic instructions from their head offices in Bombay regarding the day's quotations. So also the *dalals* and *adatyas* manage to get quotations from Bombay every day. The various *dalals* and *adatyas* take out samples of cotton and show them to merchants or agents of purchasers who, in their turn, offer prices according to the

limits for different qualities quoted by their Bombay offices and the highest bid is accepted as the prevailing rate for the day for the various qualities. There is keen competition in arriving at the rates of the day. When the rates are fixed, the cart is examined both by the *adatyas* and purchasers and if there is any difference from the samples the claims are settled after making reasonable deductions in the price already accepted. The cotton is weighed before being ginned. One maund is equal to 72 seers of 80 tolas each, i.e., 144 lbs. The ginned cotton is weighed before and after being pressed into bales.

For ginned cotton, the weights are as follows:—

80 tolas = 1 seer or two lbs.
40 seers = 1 maund.
40 maunds = 1 palla.

Special features of Dhulia market are, the large number of buyers, open competition among them in fixing the rates for the day instead of the so-called auction system followed in some other countries, the *adat* system which ensures prompt and cash payment and the business honesty of the *adatyas* or *dalals*. Nowhere, in both Khandesh districts, are payments so promptly made as at Dhulia, and therefore agriculturists prefer Dhulia market to other markets in the districts.

In our opinion more effective steps might be taken to place at the disposal of cultivators, merchants and traders, information as to market conditions, whether Indian or overseas; crop returns, complaints as to Indian produce from wheresoever originating and agricultural and marketing news in general. Daily information about these things should be provided by Government to cotton markets. These markets should be regularised and market committees should be appointed to regulate them. Such information should also be supplied to agricultural associations.

Oral Evidence.

50,624. *The Chairman*: Mr. Ransing, you are the Honorary Secretary of the Dhulia Taluka Agricultural Association and a member of the Divisional Board of Agriculture, North Central Division of Bombay?—Yes.

50,625. You are a member of the Dhulia Municipality?—Yes.

50,626. And also a member of the Dhulia Municipal School Board?—Yes.

50,627. You are also the Honorary Secretary of Khandesh Divisional Branch of the Bombay Central Co-operative Institute?—Yes, from 1923 to 1926.

50,628. You are a member of the North Central Divisional Board of Agriculture and Co-operation?—Yes.

50,629. Do you own any land?—Yes.

50,630. How much?—30 acres.

50,631. Do you farm it yourself?—Yes.

50,632. Is that irrigated land or dry land?—Some irrigated and some dry.

50,633. Well irrigation?—Yes, I have grown oranges there.

50,634. Please turn to page 385 of your note. You say: "there is only one agricultural school at Dhulia which provides education for grown-up boys of the agricultural classes." How old are the boys when they go to that school?—About 16 years old.

50,635. What is the training given there? Is it vocational?—Vocational as well as practical. There is a special syllabus taught there. It is a better school than the Loni type.

50,636. Do you give the boys any general education at all or is the education entirely technical?—It is entirely technical The course is of

two years. It is entirely technical and the standard of admission is rather high. The boys must pass the 6th or 7th vernacular standard.

50,637. So that the boy is thoroughly literate before he enters the school?—He is literate enough to understand the technique of the thing.

50,638. Can you give us some idea as to how much time is spent in the class-room and how much in the field?—Four to five hours in the field every day.

50,639. How long in the class-room?—Three or four hours.

50,640. What is the cost per boy?—Rs.11 for boarding charges per month.

50,641. That is the cost to the parents?—The cost per boy for boarding only and that is borne by the local authority.

50,642. Can you give the Commission a statement as to how much it costs to educate each boy per annum? Have you worked out the cost per boy?—I have worked out the cost for boarding charges only. I am a member of the local committee and we are in charge of boarding and lodging only.

50,643. Will you let us have the figures? What I want is the total cost of the education per boy, including interest on capital?—I shall send it to you.*

50,644. And a statement as to how that cost is worked out, showing how much is borne by the local authority and how much by Government?—The Government is responsible only for the maintenance of the school. They spend Rs.7,000 for maintaining the staff and the school.

50,645. And the local authority?—The local authority only pay for the boarding charges.

50,646. Does the taluka association make any contribution?—Rs.100 per year.

50,647. What do the parents pay?—Nothing. This is a sort of an encouragement to parents to send their boys to the school.

50,648. How long has the school been running?—Since 1923.

50,649. So that you have had three full years?—Yes.

50,650. One lot of boys has left the school?—Yes.

50,651. Have you followed their after careers?—Yes, they have been appointed as field-men for several associations.

50,652. Are you satisfied with the results?—No. We are not satisfied, because our object was to train the boys to go back to their own lands to improve those lands.

50,653. Your experience is in line with that of other people?—Our difficulty is that we cannot get good boys.

50,654. Why not?—As I say on page 386, in the beginning the attraction of service, to the ordinary type of students, is rather great and the best intellects are being drawn by ordinary schools.

50,655. *Sir Chunilal Mehta*: What attempts have you made to get the cultivators' sons to join your school?—We do propaganda work and we hope to succeed in getting the right type of student gradually. We send our teachers, we send our field-men, we also go to some places and tell the people to send their boys to our agricultural school. We approach people who own lands, because the first condition of admission to our school is that the boy must possess a certain amount of land.

50,656. *The Chairman*: You say "Out of 19 students turned from schools, seven students have taken to private farming." Is that on parents' holdings?—Yes, we do not admit students who have not got their own lands.

* Not received.

50,657. Have you any ideas as to how the school may be improved so as to attract a more suitable class of boys?—We wish that the general type of English education should be introduced into such schools;it is the want of English education that is keeping progress in check. If a boy were given a little knowledge of English, he would be able to grasp all the advantages to be derived from agriculture and all the improvements made in it.

50,658. How many boys who go into this school at Dhulia know English?—None.

50,659. Have any boys left in order to go to Anglo-vernacular schools?—No.

50,660. How many boys can be taken through the school in each two-year course? What is your capacity?—Our capacity is only 15 students per year;, the total capacity is 30 students; we cannot admit more than that, that is to say 15 for the first and 15 for the second; but the demand is very great.

50,661. How many acres of land have you attached to the school?—The school has been removed to the Dhulia model farm which has been abolished, and about 16 acres of land have been given to the school.

50,662. I see that you are not in favour of limiting appointments for teaching posts to the agriculturist classes?—No.

50,663. Do you find that you get a suitable type from the towns?—Yes.

50,664. Can they teach the field work, or must you have agriculturists for that?—The teachers from the towns have got some experience of agriculture, because they are farmers themselves. Our point of view is that whatever class they may belong to, they must have the required experience and they must be the right type of men.

50,665. In answer to our Question 3 (2), on page 388, you say that many agriculturists are making a good income from fruit growing. Is that as wholetime horticulturists, or is it a spare time occupation?—They are wholetime occupations; they have got nothing else but oranges and lemons.

50,666. Is that their only source of livelihood?—Yes.

50,667. How many acres can a man and his family farm?—Two or three acres of oranges.

50,668. Does that keep him fully occupied for the whole year?—Yes.

50,669. Do they come into bearing in the fourth or fifth year?—They do come into bearing in the fourth year, but we take them in the fifth year.

50,670. How do they finance themselves during the first four years?—By growing vegetables as a catch crop.

50,671. Like many others who have studied this question, you are in favour of demonstration on the cultivator's own fields. Do you suggest that the Agricultural Department should take the risk of experiments carried out on cultivators' fields?—Yes, otherwise the cultivators themselves will not take the risk.

50,672. You have to be careful how you subsidise failure, have you not?—Yes, by giving subsidies the Agricultural Department will be careful to see that they just make a right experiment, the tendency would be to withhold experiments on the ground that such and such a thing has been unsuccessful in one place, and therefore it would be no good trying it here.

50,673. But if an unscrupulous cultivator knows that, if he fails, Government is going to pay for that, you may find that you have more failures than successes?—No; I mean that each experiment should be controlled, or supervised by Government.

50,674. That would involve a heavy call on the Government staff, would it not?—No heavy staff will be required.

50,675. Then, who is going to do the supervision?—The Government fieldmen who are on the spot will do it; if necessary additional fieldmen may be employed.

50,676. You say on page 389: "Our association is also of opinion that the help of the revenue authorities is necessary to run the association." You want the help of Deputy Collectors?—No, *mamlatdars;* our experience is that unless there is co-operation between officials and non-officials no good work is done by such associations.

50,677. What contribution did they make exactly to the beginnings of these societies?—The *mamlatdars* simply advised the people to join our association.

50,678. It is a question of authority behind the revenue official, I suppose? —They are most influential people, and the people in our part of the country listen to the advice of the *mamlatdars.*

50,679. I did not quite understand your words on page 389 where you are talking about the difficulties of persuading cultivators to adopt expert advice. You say: "In the opinion of our association, a cultivator should be guaranteed a minimum income of land wherein the advice is to be given by an expert." What exactly do you mean?—I have explained further that he should be guaranteed a minimum sum if he fails.

50,680. Are the cattle decreasing in your district?—Yes.

50,681. How do you know? I have got figures to show that that is the case.

50,682. By how much has the price of cattle risen since the war?—By about 10 per cent.

50,683. Since 1918?—No, since 1914; we cannot get good cows and bullocks.

50,684. *Sir Chunilal Mehta*: Are you sure of that figure?—That is an approximate figure.

50,685. But the price of cattle has risen much more than 10 per cent., has it not?—Formerly, I used to get cows at about Rs.100 each; I paid Rs.120 or Rs.125 only last month.

50,686. That is 25 per cent?—Yes, that is with regard to bullocks.

50,687. *The Chairman*: In answer to our Question 20, you are dealing with marketing. Do you suggest that the small commission which a cultivator pays to the *adatya* tends to attach the latter to the cultivator's interests?—No, but I suggest that strict supervision is required.

50,688. Do you mean to suggest that if that supervision is not present he is more concerned to watch the interests of the buyer than the interests of the seller? Is that the position?—Yes; our suggestion is that the market should be regulated, and that small committees should be appointed with agricultural representatives, so that a better and closer watch may be ensured with regard to those dealings.

50,689. A cultivator may bring his produce to the market in three or four lots, whereas a large buyer will be buying every day on which the market is working. Is it the case, as a rule, that the *adatya* is more concerned to find favour with the buyer than with the seller?—Yes, he is generally on the side of the merchant.

50,690. The merchant is there every day but the individual cultivator would only visit the market so many times in the season?—Yes.

50,691. Are you yourself connected with the market in any way?—No, except that I am a member of the Municipal Board.

50,692. What have you to say about the question as to whether the market should be within the municipal boundary or outside it?—I consider that it should be within the municipal boundary, so that the Municipality may have some control.

50,693. In the case of your own district, is the market easily accessible, or does overcrowding take place on market days?—In the place in which it is situated at present, sometimes overcrowding does take place; there is no arrangement to stack the produce or carts.

50,694. Would it not be better to have the market just outside the present municipal boundary?—No, it should be within the municipal boundaries. There was a proposal to remove that market to another site, but this proposal which was made by the town-planning committee was rejected by the Municipality, so that we shall not be able to move the market from its present site. What I suggest is that it should be regulated, because at present there is no regulation.

50,695. Is there any regulation in name?—Not even in name.

50,696. Is there no market committee?—No.

50,697. Are the *adatyas* licensed?—No. We suggest that a Bill should be drafted soon in order to regulate these markets.

50,698. *Mr. Kamat*: You have been a lawyer?—I am a lawyer.

50,699. And you have been looking after the work of this association for the last 10 years purely as a labour of love?—Yes.

50,700. If you resign this labour of love can a representative of the real agriculturists class take your place? Would it be difficult or would it be easy for an agriculturist to take your place?—I do not think it is possible yet.

50,701. Have you made any attempts in that direction?—Yes, I have tried to get another to do the work, but there are no workers, and that is the greatest difficulty.

50,702. And that is why you have to continue?—Yes.

50,703. Since the establishment of this taluka development association you are receiving a great deal of help from Government, both with regard to finance and also in other respects?—Yes, since 1922, when under the regime of the Hon. Mr. Mehta, the system of subsidising came into existence.

50,704. Yes, I know that he was the author of the scheme; you think the subsidy from Government should be raised in the ratio of one rupee to two rupees?—Yes, our demand is that if we collect one rupee the Government should pay us two rupees.

50,705. In that event do you think you could undertake greater activities or intensify your work?—We could employ better men; we now generally employ a fieldman to carry out our propaganda; if the subsidy were doubled we could employ a graduate fieldman who could do better work.

50,706. You are now more or less confined to agricultural and co-operative work?—Yes.

50,707. Suppose, in consideration of the subsidy being increased, the Association is also expected to do rural welfare work; would you undertake to do that?—We can try.

50,708. That is to say, going round the villages, teaching people sanitation and hygiene and social work?—Yes, we can try, because with a better trained man we can do that also, and we mean to try something of that sort in our taluka.

50,709. So that the taluka associations are the direction in which some sort of help should be expected by Government, provided they make it worth while for the Association to look after rural welfare work?—Yes.

50,710. You have a trained supervisor to look after the co-operative societies?—Yes, as a sort of experiment during the last six months.

50,711. So far, are the indications favourable that your supervisor would do the work efficiently?—Yes, recently the Registrar paid us a visit and he was quite satisfied with the work of the supervisor.

50,712. So that this system of leaving the supervision to bodies like the taluka development association is hopeful?—Yes, it is hopeful, provided the workers are good; there is always that proviso, because we find we have difficulties with workers; but our opinion is that the supervision of co-operative societies should be given to the taluka development association, instead of starting separate supervising unions.

50,713. With regard to these agricultural schools, you emphasise that the teachers should not be drawn from any particular class?—Yes.

50,714. If they were drawn specially from the agricultural community, would there be an evil effect or lack of efficiency? Why do you insist on this point?—Because we want to draw the best brains; if a teacher is appointed from a particular caste he will think that his appointment rests on that caste only and efficiency will suffer. That should not be the criterion; the criterion should be the best brains and the best intellect.

50,715. *Dewan Bahadur Malji*: In your associations have you been able to secure the services of people from the interior?—Yes, from the interior, because four or five people on the committee are from the interior.

50,716. Do they visit various villages?—Yes, they are given some villages within their charge, and they are asked to supervise some demonstration plots; they go there and take an interest.

50,717. And you receive their reports?—Yes .

50,718. Periodically?—Not periodically.

50,719. Have you commenced, either through the office or through the supervisor, to collect indents for the requirements of the members?—We have been thinking of collecting indents through the co-operative societies.

50,720. You hope to do something in that way?—Yes; we used to collect individual indents, but now we mean to collect indents and supplies through co-operative societies.

50,721. Are there any sale societies on your side?—No.

50,722. Not yet?—Not yet. The difficulty in starting sale societies is lack of expert advice and finance.

50,723. But that you could get if you tried. Are you connected with any co-operative movement?—Yes, I am Honorary Secretary of the Khandesh Divisional Institute.

50,724. May I know if any steps are taken for the redemption of old debts?—In East Khandesh and also in West Khandesh some villages are being selected.

50,725. Do you know that an insurance company in Nagpur, the Nagpur Ideal Insurance Company, has extended its activities into your district and is insuring lives and promising to redeem old debts?—I hear complaints about that company.

50,726. Have you made any enquiries about their attempts, whether they are genuine or otherwise?—The people on our side have taken a very great liking to that company; that shows that the people like land mortgage banks.

50,727. They may be coming in, but, all the same, is it not worth your while to warn the people?—We have been warning the people.

50,728. You told the Chairman that if the sons of agriculturists come to your school, they do not take to agriculture later; what percentage of the finished products of this school are the sons of agriculturists?—They are all the sons of agriculturists; we specially emphasise that point.

50,729. Are you giving any scholarships to these boys?—No, but we give them free boarding.

50,730. *Sir Chunilal Mehta*: Before the taluka development association was started, you had other associations?—No, our association was nominally for West Khandesh district, but we used to collect subscriptions from Dhulia Taluka.

50,731. How may years did that association exist?—From 1914 to 1922, eight years.

50,732. Do you find any difference in the work of the two associations now?—Yes, because formerly our staff was only one fieldman, while now there are two fieldmen and one supervisor; so that our work has been increased with great intensity.

50,733. Much better work is being done now?—Yes.

50,734. Is there any difference in the constitutions of these two associations?—No, it is the same constitution; this association has now been registered under the Act.

50,735. Is the membership the same?—No, the membership has been increased; on account of our intensive propaganda we have 3,000 members now.

50,736. Has the membership of the committee changed?—That has also been increased.

50,737. What was it before?—It was a committee of about five or six persons; now the committee consists of 11 members of the managing committee, two Honorary Secretaries, two Vice-Presidents and one President.

50,738. How many officials used there to be on the old committee?—Only the *mamlatdar*.

50,739. And now? Only the *mamlatdar*; he is the Vice-President.

50,740. Why did the scheme of the Jalgaon farm not succeed, that is to say, giving post-graduate training?—I have given the reason, because there was no attraction; no guaranteeing of posts.

50,741. Do you think that is necessary?—I think that is necessary for some years to come.

50,742. When that scheme was brought into existence I was informed that there were plenty of young men in West Khandesh who wanted to get this training and go back to the land?—But the Government wanted graduates; there were no graduates from West Khandesh.

50,743. Supposing it was made open to other than graduates?—Then we would send some people there, because the difficulty of estate managers is very great everywhere, not only in West Khandesh but in East Khandesh; big landlords are complaining that they cannot get good managers.

50,744. How could they go to this place without any previous training?—General training is required, but not this agricultural training.

50,745. Do not you want agricultural training?—We do want some agricultural training.

50,746. You said that a guarantee against loss should be given to the cultivator on whose field improved practices are shown?—Yes, if an experiment is to be done there.

50,747. Has not that been done?—As far as our taluka is concerned, it has not been done.

50,748. It has been done elsewhere?—That may be.

50,749. On page 388 you say that an agricultural survey should be made?—Yes.

50,750. Do you do some kind of rough survey when a taluka development association comes into existence?—No, no survey has been made. That was our complaint to the Agricultural Department; we have been pressing this question before the Agricultural Department.

50,751. What kind of survey do you want?—We want a general survey.

50,752. Take your own tract served by your own association; what survey do you want there?—In certain parts of our taluka there are manures available. We have made the experiment; it did not prove successful because the people thought farmyard manure was cheaper. We want the Government to have a survey of the whole taluka to say whether cattle-breeding will be successful in a particular tract, whether this manure experiment will be successful in another tract.

50,753. Was not the Deputy Director able to give you this information?—He said he had not sufficient staff to give that information.

50,754. You say you want double the grant from Government?—Yes.

50,755. Have you put that application forward?—Yes. we have tried; we sent it this year also to the Government.

50,756. And their reply was the usual one, that there were no funds?—Yes.

50,757. Are not awards given to cultivators?—Do not you hold any shows and give prizes?—We do not give prizes.

50,758. Not on market days and in market fairs?—No.

50,759. You used to do that?—We used to, but now after the War that has been abandoned; now we are going to revive the shows.

50,760. On page 389 you say: "So far a taluka has been the unit of a development association; a lesser unit than this would in our opinion not be effective." Why do you say that?—Because there are no workers, if there were workers a smaller unit would be all right.

50,761. Do you not think a taluka is too large a unit?—It is a large unit to do intensive work, but for the present we have to be content with this for want of good workers.

50,762. If you got good workers, would you limit the area?—I would like to limit the area to a group of villages where intensive work could be done.

50,763. What kind of intensive work are you thinking of?—I am thinking of intensive work on health propaganda, subsidiary industries and also of agricultural improvements.

50,764. Would you have any social work?—Yes, social work also.

50,765. Is not social work very important?—It is very important; in our district an attempt is being made in that direction by the Khadi Mandal, and they have specially appointed a man who works a group of villages and his work is good.

50,766. Would you favour any such scheme?—Certainly.

50,767. Would you have non-officials working for this purpose?—Yes.

50,768. Would you have a society like the Servants of India Society consisting of whole-time workers for work in the villages?—Yes; they would do not only social work, but all work connected with village reconstruction.

50,769. These men might be trained in the Agricultural College and taught the principles of co-operation?—Yes.

50,790. Would your association favour that?—Yes; in the absence of trained workers, we have enlisted the services of other people.

50,771. Does your association consist only of pleaders?—No; except myself and another, all the workers are practical agriculturists.

50,772. Would you welcome some scheme by which you would have people working full time in the villages?—Yes; they should be people staying in the villages for the villagers.

50,773. Doing social work as well?—Yes.

50,774. You attach great importance to social work?—Yes.

50,775. Will you tell us whether you have had experience of small irrigation schemes?—In our taluka there is only well irrigation.

50,776. Has not Mr. Lowsley visited your taluka?—Yes, and he has given us schemes of well and tank irrigation.

50,777. Do you attach great importance to these schemes?—We do.

50,778. Reverting to the work in the villages, in your district you are so convinced by the work of the taluka development associations that you are willing to collect a capital fund by levying a cess on land revenue. In fact, you are the only district which has asked for such a cess, and you told us that it would bring you a very large sum?—In Khandesh the people have been giving subscriptions, and they are willing to give us a contribution once for all. I have received a number of applications from the villagers to that effect.

50,779. Would you consider the encouragement of small irrigation schemes and conservation of water most important?—Yes; conservation of water is most important.

50,780. I do not suppose you have any figures or data as to the area of land that could be benefited by these schemes?—In the Panjra Valley, about 13,000 acres will be irrigated.

50,781. Mr. Lowsley has not given you any figures?—No.

50,782. You have no sale societies?—No. In East Khandesh there were some cotton sale societies, which had to be wound up owing to lack of expert advice.

50,783. Why do you prefer to have the *dalal*?—Because there is no other better agency. If we could have cotton sale societies, we would like to eliminate him.

50,784. Does he buy in the villages or in the market?—Some *dalals* go to the villages and buy there.

50,785. That is why the cultivator prefers to sell to him?—Yes.

50,786. If he brings it to the market he has to pay discount or take it back?—Yes.

50,787. Have you had any experience of hand-weaving as a subsidiary industry for the cultivator?—I have not much experience of it, but my opinion is that hand-spinning and hand-weaving are good subsidiary industries in our district.

50,788. Have you any data about both these?—No. But I have a report of the Khadi Mandal about hand-spinning, which is encouraging.

50,789. Are you satisfied with that report?—Hand-spinning is not a paying industry, but it is the only industry for agriculturists in our district.

50,790. Do the cultivators do hand-weaving?—In our part generally they do not. Some castes do the work.

50,791. Is it done by a particular caste?—Yes, the Mahars.

50,792. *The Chairman*: Hand-spinning or hand-weaving?—Hand-weaving.

50,793. *Sir Chunilal Mehta*: That is restricted to a particular caste only?—In our part the Mahars and Pinjaris. In Dhulia there are Mahomedan weavers called Momins; they do this work.

50,794. Not the cultivator?—Not the cultivator.

50,795. The cultivators will not take to it?—Some of them will take to it.

50,796. There is a weaving school in your district; does it teach plain weaving or border weaving?—Plain weaving.

50,797. Do the cultivators take to it?—The District Local Board has asked some of the teachers to undergo the training, and they are introducing it in the villages.

50,798. Are tractors doing well in your district?—There are no tractors there. Our association has been asking Government to supply one for the last six months, but we have not yet heard from Government.

50,799. You wanted the tractor for nothing? No; the District Local Board is willing to pay the expenses.

50,800. On the whole, you take a hopeful view of agriculture in your parts?—Yes.

50,801. *Mr. Kamat*: You have heard of the work of Major Pogson, the water diviner?—I got him in my own fields recently; he has given me two or three sites, but I have not been able to dig wells there.

50,802. We need not go into that individual experience. We know that he has been appointed because he is supposed to have, beyond that, the power of water-divining. But you also know that there are Indian water-diviners called *panades*?—Yes.

50,803. Could your taluka association undertake to keep a record of such *panades* and verify in how many cases the sites which they select give water? —We have not done so, but we can keep a record.

50,804. It would pay the Presidency to find out such latent powers amongst others as well, would it not?—Yes; it would.

(The witness withdrew.)

The Commission then adjourned till 10 *a.m. on Wednesday, the* 30*th March*, 1927.

Wednesday, March 30th, 1927.

BOMBAY.

PRESENT:

THE MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir HENRY STAVELEY LAWRENCE, K.C.S.I., I.C.S.
Sir JAMES MACKENNA, Kt., C.I.E., I.C.S.
Mr. H. CALVERT, C.I.E., I.C.S.
Raja SRI KRISHNA CHANDRA GAJAPATI NARAYANA DEO OF PARLAKIMEDI.
Dr. L. K. HYDER.
Mr. B. S. KAMAT.

The Hon'ble Sir CHUNILAL V. MEHTA
Dewan Bahadur A. U. MALJI
(*Co-opted Members*).

Mr. J. A. MADAN, I.C.S.
Mr. F. W. H. SMITH
(*Joint Secretaries*).

Mr. STEPHEN CALVOCORESSI, Head Manager, Ralli Brothers, Bombay, and Mr. A. FOTIADI, Manager, Ralli Brothers, Bombay.

Oral Evidence.

50,805. *The Chairman*: Mr. Calvocoressi and Mr. Fotiadi, you are Managers of Messrs. Ralli Brothers, Bombay?—(*Mr. Calvocoressi.*) Yes.

50,806. Perhaps, for the sake of the note, you could give us quite shortly the scope of the firm's business?—The articles we principally deal in in Bombay are cotton, produce in the way of seeds and foodstuffs, imports of piece goods, sugar and vegetable oils.

50,807. Will you describe your system of buying in the three principal crops in which you deal, namely, cotton, wheat and oilseeds? Take cotton first? —(*Mr. Fotiadi.*) We buy cotton up-country; it all depends on the district where we are established. In Berar we buy in the usual way in the markets; we have our own ginning factories at some of the important centres. In the Central Provinces, at Nagpur, we have a factory; and, of course, we have them in the South. There are certain markets where we buy *kapas*, and others where we buy cotton ready ginned from factory owners, or where we buy through dealers. It all depends on the system of the district, and the systems vary very much between district and district.

50,808. Are there districts in which you actually buy from the cultivator? —In Berar we do.

50,809. You buy from the cultivator himself?—Yes; they have got these municipal markets where the cultivators bring in the carts and they are more or less auctioned. But there is always the local *adatya* who has his own carts coming to him, and, strictly speaking, you do not come into actual contact with the cultivator. (*Mr. Fotiadi*): Every *adatya* has his own cultivators who bring their own carts to him, and the *adatya* looks after the selling part of it.

50,810. So that you are selling through an *adatya* all the time?—Yes, but the price given is the general price. They fix one price for the carts and then every ginning factory gets its own carts according to the arrangements they have; but there is one price given. What the cultivator gets out of that price is a different matter, but there is one official price given in these markets.

50,811. Do you, in any case, yourselves carry out primary collection by going actually to the villages and buying from cultivators in the villages?—Not here, not in these parts of India.

50,812. In other parts of India?—I do not know now about Sind; I used to be there years ago, and we used to go to the villages and buy direct from the cultivators; but I have not seen that on this side of India. The carts used to come straight into our compounds.

50,813. Driven in by the cultivator himself?—Yes, even before they came to the market; but that is also in the old days; now there are more intermediaries.

50,814. One of the principal complaints made on behalf of the cultivators is that quality is disputed after weighment has been effected?—Yes.

50,815. And the deductions are made very often outside the area of the market and beyond the control of such market authorities as may exist?—But the market authority that may exist cannot enforce strict rules on this matter. Suppose there is a gin owner and he gives a bigger price than the others are prepared to give (the idea being to attract the carts into his compound) they have to go to his compound; once they are in his compound and there are many carts waiting, then he fixes the allowance for supposed inferiority of quality and other matters. I do not say it is a general rule, but it is done; and so he gets the difference in the original price he has given, through allowances from the cultivators. That is done; some of the allowances are justified and some are not.

50,816. You probably know there is the prospect of an Act being passed which will give to market authorities control over marketing not merely on the premises of the market, but also in the yards of ginning factories within the municipal area?—But take the case of the villager who goes into a compound; there the gin owner has to examine what he has bought; there may be a difference in quality between the upper layer and the lower layer; the gin owner then demands his allowances; some of them are justified under the present system, some are not. If you set the local authorities to investigate these matters I think you would have no end of trouble, especially in a place where you have thousands of carts coming in in a day; they have to be weighed that day and the cultivators have to leave and go to the villages, because the next day you get just the same number of carts coming in.

50,817. It is suggested that the absence of storage at the market leaves the cultivator at the mercy of the buyer, because the cultivator is unable to retain his cotton but must sell it on the day he brings it to market. What do you think of that? Do you think storage could be provided?—Storage could be provided, but then we should have to change the mentality of the cultivator, because his *kapas* would have to be mixed. A man brings a cart down to the market; if you want to store that cart specially, you would have to have a very large amount of accommodation. If the *kapas* could be mixed all in one heap and then he could get his share of it later on, it would be a different matter; but I do not think that system could be enforced in India.

50,818. From the point of view of improving the quality of the cotton grown, it is obviously important that the cultivator should, if possible, receive full value for quality as well as quantity?—Yes.

50,819. Do you feel that under present conditions the cultivator is getting the full value due to him for the quality of his cotton?—In certain districts he does, but it is not a general rule. The question is rather complicated. There are two sorts of cottons as regards the cultivator; there is the cotton that gives a big outturn and which pays the cultivator better, and there is the cotton which gives a smaller outturn but is a better cotton. During the last few years we have witnessed a fall in the quality of the Berar cotton through the introduction of the *roseum* variety, which gives a better outturn but has not got the staple of the

old Berar cotton. We have seen a big drop in the quality with a bigger outturn to the cultivator; that is why they have fostered it.

50,820. No doubt that is so, but the general principle holds that it is in the public interest that, if possible, the cultivator should receive value for quality?—Yes, it is, and it is to the interests of everybody that the cultivator should be helped to look after his crop and get a better crop next year. These restricted areas which have been introduced have helped a good deal; but it is not general; it is far from being general.

50,821. Do you complain of cultivators mixing their cottons?—They do but it would require a very educated cultivator to resist the temptation.

50,822. As a rule, the mixing is not carried out by the cultivator, but at a later stage?—It is carried out at a later stage in the ginning factory; but the cultivator does also do that; if he has got rain-damaged cotton and a cotton with red leaf, he very often throws a certain percentage in of black leaf cotton, hoping that it will pass.

50,823. Usually at the bottom of the cart?—Usually in the middle; it all depends.

50,824. Have you experience of co-operative selling societies?—Very limited; they are not very popular.

50,825. With whom?—With the brokers.

50,826. Why are they not popular?—Because they are taking their business out of their hands.

50,827. Do you think there is value in these societies in that they educate their members, promote the growing of better quality and an appreciation of what grading means?—They are very small yet, one cannot tell; but on principle, of course, they are good.

50,828. Have you been able to give them any direct support?—We have, especially in the Hubli district. (*Mr. Calvocoressi.*) At present we are under boycott for having done it in the Gadag District. About a month ago we bought; they telegraphed to us from there that the buyers were not allowing it, and they threatened a boycott; we went on buying all the same, and they boycotted us.

50,829. Is it purely local, confined to the Hubli market?—To the Gadag market.

50,830. I suppose they could not severely shake the firm of Messrs. Ralli Brothers by an attack confined to that particular district?—No, we do not mind it. They tried it two or three years ago in Akola too.

50,831. Is it your view, as a firm, that on the whole these co-operative selling societies if well managed are deserving of support?—(*Mr. Fotiadi.*) Yes, it is a good thing.

50,832. You are educating your growers up to realise what quality means, what straight dealing means and what grading is worth?—Yes, but we have not got enough experience, and the co-operative societies are very small still, so that we cannot say whether they are well managed or otherwise.

50,833. Have you gentlemen anything you would like to say on the two Acts, the Cotton Ginning and Pressing Act and the Cotton Transport Act? —The Transport Act is a good thing; it has done a lot of good in Hubli and other places. Of course, it is too early yet to speak about some districts, but in Hubli it has done a lot of good. They used to import cotton even from Bokhara, mix it up with the local cotton, and bring it down to Bombay as pure *kumpta.*

50,834. *Dr. Hyder:* Did you say Bokhara in Central Asia?—Yes, it used to come down in the beginning of the Bolshevic trouble between 1918 and

1923. Now it has stopped coming down; they could not sell it there, and it used to come through Persia. It resembles *kumpta*, and they used to mix it up with all sorts of cotton. Now we get a much better cotton from there, and they get much better prices, but they are not selling so much.

50,835. *The Chairman*: How about the last Ginning and Pressing Act?—It is good; it has done a lot of good. We know this marking of the bales is a good thing. As regards labour, it handicaps the conscientious gin owner; there are a lot of gin owners in India now who use female labour and children, whereas others do not do it; it is done and they are not detected; it is very difficult to find out because, as a rule, they have a man at the railway station, and if the Inspector comes the factory is cleared. Then they work extra hours. I do not say all gin owners do. As the Act is not enforced for everybody, the conscientious gin owner suffers to a certain extent.

50,836. It is the first Act that contains the labour clauses, is it not?—Yes, it is the first Act; the second Act, I believe, is only for marking the bales and returns.

50,837. What do you say about that Act?—That is good.

50,838. You are now dealing with the marking of the bales and the making of returns?—That is good. After all, we find even in Bombay now that you can trace the place from which a falsely-packed bale comes, the factory and the man who ginned it. That Act will not do any harm, and it will do a lot of good.

50,839. It has been suggested to the Commission that in certain districts rings of ginning factories are created in order to raise the ginning charges above the level of competitive profits, and that the margin of profit is used to distribute as a bonus throughout the ginning factories in the ring *pro tanto* according to the number of machines in each factory?—Yes. They have what they call pools. For the last 20 years or so we have refused to join any pools in any place.

50,840. Is the general effect of a pool of that sort to reduce the amount that the cultivator obtains for his cotton?—Naturally, because a bigger ginning or pressing rate is paid.

50,841. The price you get is a world price?—Yes, and the price the cultivator gets is that much smaller.

50,842. Can you suggest any means by which these pools might be broken up or the formation of new ones prevented?—I do not think so; the trouble is that there is too much ginning accommodation.

50,843. There are too many ginning factories and too many gins?—Yes; they come to a certain understanding to keep a few factories idle. They have invested the money, and they want a certain return on that money; I should think it would be very difficult to legislate against it.

50,844. Some limitation of the number of gins would be the only hope of removing the conditions which have brought about these pools?—Yes, but then conditions change so much.

50,845. When you have a big crop you need all these gins to deal with it?—We have seen very big changes in the markets, centralisation and decentralisation again, small markets opened, and so on.

50,846. What do you say about the activities of the Indian Central Cotton Committee?—They do very good work in a general way.

50,847. Are you attracted by that type of organisation for research?—Certainly.

50,848. Do you think it might be possible to introduce the principle with regard to other crops?—I know very little about other crops, but if it is good for cotton I do not see why it should not be good for other crops.

50,849. Have you thought this out?—(*Mr. Calvocoressi.*) What crops are you thinking of?

50,850. Let us take wheat and oilseeds; would it be possible to organise research into the problems of growing wheat on the same lines as the Indian Central Cotton Committee?—(*Mr. Calvocoressi.*) Yes, I see no objection whatever; you mean principally for differentiating in qualities and settling big differences?

50,851. It really amounts to organisation of the industry from the grower to the final marketing stage, emphasising the common interests of all and utilising the knowledge of all for the improvement of production in all its stages and distribution and marketing?—Yes, certainly.

50,852. Have you gentlemen anything you would care to say about the quality of Punjab cotton? It is suggested in some quarters that 4-F has deteriorated. Are you buyers of that particular cotton?—(*Mr. Fotiadi.*) Yes, we are; it is the Karachi branch who deal with that cotton, but we see it also.

50,853. Have you any views?—I do not know, I could not tell you; I have been away a year. This year I know it is very bad as regards quality, but it may be due to climatic conditions.

50,854. Is there any suggestion in your mind that there is a decline in the quality of the cotton?—There was a very material decline about 10 years ago, and then I saw a certain amount of improvement. For the last five or six years I do not think there has been a decline in quality.

50,855. Was the recovery complete? I do not think it was absolutely complete. At the very beginning we had most beautiful cotton; then, through mixing in the ginning factories, the seed got mixed up and the new crops got mixed up; but that has been stopped. You get more even running cotton in the last few years. Unfortunately I have not seen much of this cotton for the last few years.

50,856. Does your firm do anything in the way of financing the cultivator in the growing or marketing of cotton?—No, we do not advance on the cotton; we buy ready and pay cash; that is our system throughout.

50,857. Throughout all crops?—Mostly; sometimes if there are no cultivators who are bringing it in, we buy through the *adatyas*; but we try to buy, as much as we can, *kapas*, and *kapas* means buying from the ryot.

50,858. What are your buying arrangements in wheat? (*Mr. Calvocoressi*): In wheat more or less the same as for cotton. They come to the different markets up country; it differs with the different markets up country.

50,859. You follow the local custom?—We follow the local custom, whatever it is. Again, where it is a question of carts coming to the godowns, they get the sample of the quality there and then and estimate the value. There is one easier way of getting at the actual qualities and that is by analysis, which you do not have in cotton. You can have damaged grain analysed afterwards as a check; you do not have that in cotton. It also is paid cash; if the carts come to the godowns the grain is estimated from the carts and a price given. If it is accepted, delivery is taken right there and then, and payments made cash to the cultivator or the cartman, whoever it is. We buy by forward contracts too; in Bombay we buy in two or three different ways, either through contracts forward or in the ready market in Bombay, but that is very little. The Bombay wheat is becoming less and less every year; for the last few years there has been hardly any at all. The wheat is mainly at Karachi.

50,860. Do you deal for the export trade only or for internal consumption?—We deal mostly for the export trade. One or two mills buy an

occasional lot of local wheat, or Delhi or Cawnpore wheat is sold here; and sometimes it is imported wheat from Australia. But then there are only one or two mills in Bombay, and they only buy from us when they cannot buy cheaper from their own agents. They have got more or less regular people who have been selling to them for years; they only buy from us if they can get it cheaper than that. But the trade of Bombay now has come down to mostly groundnuts, castor seed and cotton seed, and a little linseed; but as to all the other big trades, there used to be Bombay wheat, the better qualities of wheat, *til* seed and poppy seed, not so large but still prices were always good. All that has practically gone; now we rely entirely on castor seed, cotton seed and groundnuts, and, as I say, partly linseed. Groundnut seems to be the most important of the lot and the most expanding one generally.

50,861. What do you say about the changes in the quality of Indian wheat during the past 15 or 20 years? Is there an improvement?—No; about Karachi I cannot say, because I have never been to Karachi, but I should say Bombay qualities from what comes into the market, are distinctly inferior and are more mixed. Up to 5 or 6 years ago you probably had 6 or 7, or certainly 3, first class qualities of soft wheat and 3 or 4 qualities of hard wheat, and hard wheat again was divided into yellow and red hard wheat. Now all that has disappeared.

50,862. How do you account for the disappearance?—Partly owing to the local consumption in the country.

50,863. The growing consumption of wheat in the rural areas?—Yes. Take that very good wheat which comes from the Nagpur side, the good white wheat, the most bold and well fed grain; that has practically disappeared; you hardly ever see it.

50,864. That is consumed in the district?—I suppose that is consumed in the district.

50,865. Is that merely a suggestion or is it definitely within your knowledge?—It is impossible to trace back where it has gone; the whole of that kind of wheat which used to be exported from Bombay is used for local consumption now since the War. Before the War they never used to touch wheat for local consumption; they used to rely on *bajri* and *juar* and that sort of thing. Since the War, I suppose partly because the labourer has got richer and partly because crops in the other parts of the world have increased, wheat has got cheaper and they use it locally and eat it themselves instead of selling it.

50,866. Is less wheat coming in from the districts?—Much less from the Bombay side; hardly any is being exported from Bombay now.

50,867. Is any Punjab wheat coming into Bombay?—No, it does not come through here; it is entirely Karachi.

50,868. Have you anything you would like to say about the advisability of erecting grain elevators in India?—That has been discussed so often, particularly on the Karachi side; I do not think it will ever be feasible on the Bombay side; I do not think there will be enough wheat for them on the Bombay side. It will require very strict supervision and there will be stages where dealing might be very difficult; elevators will much more depend on the personnel running the elevators than any other system does.

50,869. In grading and the granting of certificates?—Yes, there will be very grave difficulties there.

50,870. What about the adulteration and damping of wheat?—On this side we have no experience of damping or adulteration of wheat; there has been no serious complaint. The article in respect of which the damping is very bad on this side is groundnuts.

50,871. How about the soundness or the reverse of the grains compared with pre-war times? Is the damage by weevils greater than it used to be?—That we cannot say, but I see no reason for the quality changing in that respect. It is a question of how much longer they can keep it; in the old days they could not afford to keep it any time. Once they open the pit the deterioration starts. If there is greater damage than in the past, it is probably due to that, that the holdings of the wheat are much longer and much larger than they used to be in the past.

50,872. Holdings by the cultivator?—Yes.

50,873. To what do you attribute the growing power to hold?—Personally, I should say the cultivator is being financed by other people more than by his own resources.

50,874. Do you mean the moneylender?—I should think so, yes; that seems to be the general impression with regard to every article: many more middlemen, much more speculation and much more holding.

50,875. Have you come across any co-operative wheat selling society?—No; not yet.

50,876. What about the adulteration of wheat by dirt?—That has been reduced considerably, as far as our experience goes; we had to fight that about 10 years ago; we had a very serious fight about that with regard to all wheat and all other articles when we introduced the selling of pure wheat at home. We had great difficulty in establishing that at first, but once it started it went on very well; I have heard of no complaints of adulteration from any side since then as far as we are concerned.

50,877. And from the Bombay side?—Not from here either.

50,878. Who actually carries out adulteration when it takes place?—It is very difficult to tell; I suppose the holders of the stocks, most likely. In the old days in any article it used to be almost a recognised custom.

50,879. Did large firms practise it?—We did not. It is very difficult to say who did; but certainly somebody must have been practising it, because when we started on the clean basis of all articles we had a very difficult time with it. On the other hand, they would not pay us the extra price at home at first. It was clear that if consumers wanted to buy at the cheaper price they would have to pay for a certain amount of earth with the product.

50,880. Until you get a better price in the market you cannot press for clean wheat here?—No.

50,881. On the question of the home market, are you satisfied with the present arrangements under which wheat is bought in Great Britain?—That is beyond our control altogether; I do not know the exact working on that side.

50,882. Surely you must have views on that point; it is very important, is it not?—That is a question which comes entirely under our London firm, the actual running of qualities and the selling of them.

50,883. Let me put the question to you in this way: is clean wheat receiving its due reward at this moment?—That is an entirely different matter; I should say, at times yes.

50,884. You do not suggest any improvement in the system?—You mean better price?

50,885. I ask you if clean wheat is getting a due reward, is obtaining an appropriate price for its cleanliness?—That is a very difficult question to answer; it is perhaps, from the consumer's point of view. In many cases when clean wheat or any other clean article is shipped and the market goes against the consumer, there is always some complaint to be

found; we have had cases when we were perfectly certain of what we shipped, our analysis and quality samples were in our opinion right, yet there were complaints. Very often complaints are based a good deal on the fluctuations on the market; it is not entirely a matter of quality; naturally, if consumers can get an allowance out of you they try to get it.

50,886. The Commission is concerned with the interests of the cultivator. It is certainly to the cultivator's interest that he should get value for quality and for purity of produce?—Generally speaking, I should imagine that anywhere one should get fair value for quality, but I do not think that the merchant always gets it, and therefore the cultivator may also not get it.

50,887. Provided it is a sufficient proportion of the whole. A very small lot does not receive a reward for the quality, does it?—A small lot may not, unless vastly superior.

50,888. You are not interested beyond the Bombay side?—I thought you put the question in a general way. We are interested in a general way, but we are not quite familiar with the detail of working on the other side.

50,889. If possible, we will see someone representing the buying interests in London?—Yes. Anybody in a London firm would be glad to give you all the information they can.

50,890. We now come to oil-seeds. That is the third article with which you deal. Is there anything novel in that line which we have not touched in dealing with cotton and wheat?—Novel only in practically the disappearance of certain oil-seeds from the market.

50,891. Would you give us a list of the disappearing seeds?—They are the seeds of which there is much less cultivation, because there has been much less demand, and one of the important ones of these is *til* seed, which used to be a very complicated article with many qualities (white, black and brown), with material differences in assortments and values. *Til* seed seems, during the last few years, to have disappeared almost entirely from the export markets. It appears to have been replaced partly by groundnuts. *Til* seed was used mostly for finer edible purposes, but it was found that groundnut oil did just as well, and was cheaper, and now *til* seed (best quality) is about £2 per ton dearer than groundnuts.

50,892. You wanted to bring before the Commission the unfortunate results of the practice of damping groundnuts?—Yes. That is very serious, because once the groundnuts are damped, even though dried afterwards, they retain the traces of the damping, which is very injurious to the quality.

50,893. The damage is permanent?—Yes; not only in appearance, but apparently it produces certain acids, which are called fatty acids. That reduces the value of the groundnuts. The damping is not so bad in the Bombay Presidency as it is in the Madras Presidency. There you have a higher quality (the quality which is supposed to be decorticated dry), and the lower quality which results from natural or artificial wetting. There is a difference of about £1 to 30s. per ton in value between the two qualities. When the first quality is damped, it has to be degraded down to the second quality, and the cultivator cannot make up the loss of the £1 in value per ton by the extra weight that he will produce by damping his groundnuts at the time of selling.

50,894. As one of the more important firms dealing in groundnuts in the export trade, did you represent these facts to the Agricultural Departments?—We did, and on the Bombay side it was taken up very seriously. I know the matter went to the highest authorities and keen interest was taken in it.

50,895. Did you yourself communicate with the Agricultural Department?—We did, and on the Bombay side the question was taken up, but on the Madras side very little appears to have been done.

50,896. Have you had any communications with the Government of India? —No.

50,897. You know that they have got an Agricultural Department?—Yes. We went through the local authorities first. We represented the damping as a very serious matter, and we particularly pointed out that there are other groundnuts, such as the East African groundnut, starting now in competition with the Indian groundnuts, and if the Indian groundnut quality is allowed to deteriorate it will not stand the competition.

50,898. So that there is competition from Africa?—Yes. Last year we tried throughout the Madras districts to collect villagers and cultivators and talk to them against damping, but they just smiled at it; they did not pay the slightest attention to it. They told us that if groundnuts are sold dry they lose by it. I myself saw groundnuts being wetted in decorticating factories with buckets. There was no question of sprinkling; water was thrown on the top of the heaps of groundnuts in bucketfuls. The argument of the seller is that the wetting prevents breakages.

50,899. That makes for a low percentage of breakage in decortication? Is that so?—There may be something in it, but not as much as they say.

50,900. Do you buy nothing but decorticated groundnut?—Yes. Occasionally we have bought small lots of unshelled groundnuts, but not to any extent.

50,901. In your view, damping does represent a very serious menace to the reputation of Indian groundnuts?—Yes, absolutely; and at present there is a loss in value for the existing qualities. There are qualities which are higher, but which have degraded to the lower quality on account of the wetting.

50,902. You think that the loss to the cultivator through deterioration in quality is greater than the value which the cultivator obtains for the water that he sells?—Absolutely.

50,903. You think the cultivator himself is losing?—Yes. Whoever is responsible for the water in the groundnuts certainly cannot get his loss of a £1 per ton or so out of the water.

50,904. You told me you saw the damping going on in the decorticating factory. Who is responsible for it?—That is what I tried to find out at the time I went to buy the groundnuts. The owner of the factory said it was not his stuff. Then I got to the owner of the groundnuts, the cultivator. He said it was his stuff, but he had handed it over to the middleman, and it was those middlemen who were just running the ginning factory, and in that case were encouraging the wetting.

50,905. What did they say?—Their argument was that it prevented breakages, and that the quality would be all right. If you take a heap of groundnut which has been wetted and dried afterwards, you can easily make it out from a distance from its colour.

50,906. You do not blame the cultivator for having poured water on the groundnuts?—Not in that particular case, and I suppose in many cases he is not be blamed. He is made to believe that he is going to get a better value if the stuff is wetted, and so far he has believed it. The cultivator is to be blamed for giving himself up to the middleman.

50,907. You think that the cultivator is allowing his stuff to be wetted?—Yes, because he thinks he is getting better value.

50,908. Whereas, in fact, you suspect the middlemen of taking the difference in value?—I personally would be inclined to suspect the middlemen most times in all these matters.

50,909. We have had great difficulty in finding out who is responsible for it?—That is my personal view of it too. It is difficult to trace, but there is no question about it that the wetting is done.

50,910. The difficulty of finding out exactly who is pouring water on the groundnut is a real one?—In the case I mentioned it was distinctly the middleman, because the owner of the decorticator said they were not his groundnuts, and he did not care a bit whether they were wet or dry.

50,911. Do you feel, broadly speaking, that it might be possible, by legislation and propaganda, to raise the grade and standard of Indian produce above the level at which it now stands?—I think so; with propaganda and very strict legislation and supervision. Otherwise, if there is legislation without strict supervision there will be certain people who will abide by the legislation and suffer by it.

50,912. Unfairly?—Yes, unfairly. That is the whole trouble.

50,913. Looking at the matter quite impersonally, I take it, from your point of view as exporters, you live on the margin? You are not really concerned with the quality as long as you do not lose by your transactions?—We are concerned with quality, because it makes our name as shippers. Without actually guaranteeing sales on samples, we guarantee to ship the best average quality available at the time of shipment.

50,914. It would lower your market if the quality was not high?—The exigencies of the consuming markets are more for the higher quality.

50,915. I do not wish to ask you to bind yourself to anything of this sort to-day, but this is your general opinion, that the organisation of these crops from the cultivator to the ultimate market is an advantage for all concerned, and you think that you, for instance, as a firm, would be glad to take a hand in that work?—It ought to make for honest trading, and therefore we would be supporters of it.

50,916. Straight dealing all through?—Absolutely.

50,917. This, perhaps, may strike you as rather an unusual question, and I should like you to answer it at length if you choose to. As a firm, how much do you know of the production and marketing of the produce in which you deal? Are you concerning yourselves very much with it?—Not in a highly scientific manner, we have not got the experience to do it; we could not say what would make towards improving the quality (or otherwise) at the time of cultivation.

50,918. So that, as a firm, you have no intimate knowledge of the earlier stages of production and marketing?—Except watching weather conditions from a market point of view when crops are being sown and when they are growing, entirely from a commercial point of view. We know nothing of scientific fertilisers and methods of ploughing or sowing.

50,919. If you, as a firm, would be represented on, let us say, the Central India Wheat Committee, all that side of the work would be entirely novel to your firm?—We have no expert knowledge.

50,920. Would it be to your advantage that the exporter should make himself, to some extent, acquainted with, and practically interested in, the earlier stages of production and marketing? You, after all, know the qualities required overseas?—But for the exporter to follow the science of production it would mean an entirely separate scientific branch of his organisation. Such a knowledge would, of course, be an additional advantage.

50,921. Developments in that direction are taking place in America, are they not?—Yes, and they are very welcome.

50,922. Do you feel yourself that the time has come for a move towards the fixing of grades and standards for All-India produce?—You mean different qualities?

50,923. Yes?—Yes, that could be done, but with great difficulty if there is too much refinement. In broad lines standards already exist. Take an article in oil-seed, like *til* seed. There are many grades and qualities. You have to consider quality, colour and size of grain. In the case of linseed, which is an easier article, you have to consider size of grains. For each article you have specially to consider its peculiarities. This is already done to a great extent. More refinement may prove unworkable.

50,924. Have you anything to say about statistics?—No.

50,925. Are you satisfied with the information provided by Government as regards the condition of crops, &c.?—Yes.

50,926. Do you think it is accurate?—It is very difficult to be quite accurate, but at times the information is late.

50,927. You would like it a little earlier?—Yes. Otherwise it is fairly accurate. It is not reasonable to expect estimates of sowings and yield any nearer the actual than they are given.

50,928. Have you anything to say about shipping?—No. (*Mr. Fotiadi.*) I should like to say something about the damping of cotton which is going on on rather a big scale. I do not think it is doing any good to the Indian cotton; on the other hand, it spoils its name, and legislation, if applied in a very strict manner, could stop it.

50,929. Where does it take place?—In factories.

50,930. Almost entirely?—Yes. The cultivator does not do it; it is done entirely in the ginning factory.

50,931. At what stage?—Cotton has to be very dry when ginning, but once it is ginned it is damped with hoses in many cases.

50,932. Before baling?—Yes, they put the hose on three times, in the morning, at noon and at night. Cotton is a fibre which draws the dampness inside. Damping does not spoil the cotton very much if it is done carefully. It is difficult to detect damped cotton.

50,933. Does any permanent deterioration result from such damping?—There is deterioration afterwards; it spoils the colour, but if it is sold within a month or so you cannot see the deterioration in colour.

50,934. Is that practice common?—It is very common, and it is doing a lot of harm.

50,935. Is it universal?—I cannot say; we do not do it ourselves. (*Mr. Calvocoressi.*) I was in Nagpur and the Berars two or three months ago and I saw it. Several of our own factories were lying idle because we could not buy the cotton, not allowing for damping in our prices. Dealers who asked us to press for them in our factories their own cotton asked me: "Would you provide the water?" I told them we did not provide water for our own cotton and that therefore we were not going to do it for anybody else. The man took his cotton away from our factory.

50,936. Do you believe that in the long run that practice will prove a paying one?—I should not think so, because somebody has to lose by it. Who is going to get the benefit? Not the buyer of the wet cotton. (*Mr. Fotiadi.*) It pays the gin-owner.

50,937. *Sir Chunilal Mehta*: As regards the working of the Cotton Transport Act in Navsari, I thought you said that it was too early to come to any decision?—(*Mr. Fotiadi*): Yes, but I find that the quality has really improved. There is no doubt about it that it looks slightly better. It may be so for climatic reasons or it may be a matter purely of chance

or luck. I have no doubt in my mind that it is due to the Transport Act, and I am sure that as years go on we shall see the Surat cotton improve a great deal.

50,938. Why have you not seen these results so quickly in Dharwar and *kumpta*?—Because they were importing from outside. It was not a question of taking from one village to another, but it was a question of importing from one district to another.

50,939. With regard to your answer to the question by the Chairman about the necessity of opening a special branch if you want to know the processes that are going on before the article comes to you, will you kindly explain it a bit?—(*Mr. Calvocoressi*): I meant the processes of cultivation, scientific processes of which we have no knowledge. Therefore we are not organised to advise regarding scientific improvements.

50,940. Do the exporting firms know the conditions under which the crops are grown, what the cultivator has to do before he brings them to your purchasers?—Certain conditions, yes.

50,941. But to make a distinction between knowing and helping?—I was talking of scientific knowledge of fertilisers and the methods of using them. A commercial man ought to know and does know about the usual times of sowing and about the effect on the crops of certain weather conditions, &c. But he is not in a position to say what scientific improvements can be made to improve the quality or the yield of the crops. This is a question of scientific research, for which a commercial man is not equipped.

50,942. *The Chairman*: If you are a member of a committee representing interests from the growers to the final distributors, you bring your quota of expert knowledge as marketers, the scientific Department of Agriculture bring their contribution of scientific knowledge, and by the interchange of such knowledge and by the play of experience upon experience you reach a decision which is in the interest of the trade as a whole?—Yes.

50,943. *Sir Chunilal Mehta*: Firms like yours almost always employ their own people to make purchases in the districts?—Yes, we have entirely our own salaried staff.

50,944. Does the middleman generally care what happens to the interests of the cultivators?—I do not think so, because, after all, he works for his own commercial interests and not for the benefit of the cultivator.

50,945. That is my feeling, too; his interest is in buying the article as cheap as he can?—Yes, it is his means of livelihood.

50,946. He does not interest himself, for instance, in seeing that a better article is produced so that ultimately his business grows and the cultivator gets a higher rate?—He is interested in a saleable article being produced.

50,947. He is interested to that extent?—Yes, he is interested in seeing that a quality which is saleable is produced, and naturally if he could sell that quality with a little more profit, he would do it, but the next buyer might object, and then there would be no transaction.

50,948. In fact he helps in this mixing and damping?—I cannot say because I have not seen it being done. I suppose he certainly advises it, to meet prices. That is done to meet prices.

50,949. *Sir James MacKenna*: From what you know of the conditions in the Central Provinces, do you think there will be an extraordinary difficulty in improving that cotton?—(*Mr. Fotiadi*): I do not think so. There are different qualities grown there.

50,950. What about the Berars?—The staple has fallen off. We can see it very clearly, because we used to get certain fine stapled types of cotton, but for the last 10 years we cannot get those qualities. Gradually those fine staple types have disappeared.

50,951. Do you think that the Central Cotton Committee ought to give better attention to this question of improving the quality of cotton in the Central Provinces and the Berars?—Yes, but the trouble is that the Japanese are buying that cotton now.

50,952. They mix the different varieties, I suppose?—I believe so.

50,953. As long as the Japanese continue to buy it, it will be difficult to combat it?—Yes, they are very big buyers of Berar cotton.

50,954. I think your firm are rather in a unique position, being exporters and importers of raw material and not manufacturers?—Yes.

50,955. Am I correct in assuming that Ralli Bros. sell cotton of their own types and not of standard types?—As a rule we sell our own types, but we also sell on recognised types as known in the home market standing in the cotton markets of Manchester.

50,956. For how many years has your firm been in India, might I ask?—(*Mr. Calvocoressi*): Over a century in existence and over 70 years in India.

50,957. *Mr. Calvert*: In view of the fact that prices for raw produce are dependent on the world's markets, what do you think would be the effect of a small export tax on wheat?—I should say it would be disastrous for Indian wheat; it would make Indian wheat still more expensive at home and to that extent more difficult to compete with the other wheats of the world.

50,958. Do you think it would have any effect on the internal prices of wheat?—It might reduce the prices.

50,959. Could you give us any indication of the minimum size of a parcel of any new variety of wheat or other crop you would find in the market?—I do not think there is any new variety of wheat that we have heard of at all as regards the Bombay qualities.

50,960. But your representative at Lyallpur told us about that?—That was with regard to Punjab wheat.

50,961. He gave us the figure of 10,000 maunds as being the minimum variety which would pay a distinctive price?—I am afraid I cannot answer that because it is not a wheat that I know anything about; it is Punjab wheat, and I do not know much about this new quality. I understand, however, it is a slightly improved type of the ordinary Karachi wheat and is mainly cultivated by European farmers.

50,962. *Mr. Kamat*: Do you export oil cakes in considerable quantities?—Not at all, so far.

50,963. To your knowledge, is the export of oil cakes growing of late years?—It has not grown very much so far, but oil cakes are beginning to be more in demand, and exports must therefore grow. Last year 50,000 tons were exported from Bombay.

50,964. From which countries is there a demand for Indian oil cakes?—England and the Continent; the demand is starting, increasing in England, so that it is very difficult to say, at present, which way it is going to develop most. At present the bulk is shipped to the Northern Continental ports.

50,965. It has been suggested that there should be a restriction on the export of these oil cakes in the interests of agriculture. Supposing some such restriction were enforced, what would be the effect, in your opinion, with regard to groundnut cake, or castor cake, or even *copra*; but I am referring chiefly to groundnut cake?—It would reduce the internal prices.

50,966. And therefore you would be in favour of restriction?—The cakes do not interest us, so far at any rate.

50,967. Are you in favour of restriction or are you against it?—Personally, as an exporter, I am against restriction of exports.

50,968. You are in favour of free export?—Yes.

50,969. Even with regard to oil cakes?—Yes.

50,970. *Dr. Hyder*: You stated in answer to a question put to you by the Chairman that there was a pool of ginning factories. Is there any pool or conference of these Shipping Companies here?—We are not in favour of conferences; there is no such system on this side, at any rate; it is the system in Bengal. The only conference on this side of India is that of the Steamship Companies which serve the Far Eastern trade.

50,971. *Sir Chunilal Mehta*: Do you deal largely in oil cakes?—No, but there seems to be a demand coming into evidence.

50,972. Do you know whether the oil contents of the cakes as they are shipped now are liked in the consuming markets or not? Is there not too much oil content in the cake?—It has been alleged that some cakes are not sufficiently pressed and traces of oil are left, but that may be a rumour.

50,973. If all the oil were extracted, would not the cake fetch a better price?—I do not think so; I should think that it would fetch a better price with a little more oil in it, particularly if the oil in the cake is sufficient to warrant further extraction.

50,974. *Dr. Hyder*: You are an exporter of oil seeds?—Yes.

50,975. Are the ships which touch at ports equipped in such a manner that they can only take the oil and leave the cake behind, and would there be any difficulty on account of the defective equipment?—As a matter of fact, the oil is left here and the oil cake only is exported.

(*Mr. Calvocoressi*): I should like to mention one point and that is the growing of castor seed in close proximity to food crops. We brought this matter up before the Government of India some time ago. We have had a lot of trouble and a great deal of complaint from Home on this question. Occasionally crushers find some grains of castor seed in the cotton seed which is going to be crushed, and the complaint is that were these grains to escape attention they would contain objectionable matter from the castor seed. It has been alleged that this matter is very detrimental, almost poisonous, to cattle, and this has caused us a great deal of trouble. We wrote to the Government, as I said some time ago, asking them to take some steps to put a stop to this, but nothing has been done and I understand that one of the difficulties in the way of tackling this problem is that castor seed grows on the edges of the fields and it would be a waste of land not to make use of them.

50,976. *The Chairman*: How does the castor seed get into wheat, for instance? Castor seed is as big as a finger nail, is it not?—In picking up the grains from the ground a few castor beans are inadvertently picked up as well, and that is how the castor seeds get in amongst the other seeds. We try to extract the castor seed from the other seeds as much as we can when the goods come to our warehouses but a few castor seeds sometimes do remain as total extraction is impossible.

50,977. What harm does it do in wheat?—We have had no complaint with regard to the mixture of castor seed in wheat; we have had complaints only with regard to cotton seeds.

50,978. I suppose castor seed does bear some slight resemblance to cotton seed?—No resemblance. It is much larger and has no lint round it.

50,979. *The Raja of Parlakimedi*: Would you prefer the export of oil to the export of the seed?—We have not thought of that question; the oil could never be sufficiently refined here; it would be half-crude oil I presume.

50,980. You would prefer to export it in the shape of seed?—Yes; but if it came to the market as an exportable article and if it were a paying article in large quantities, we might look into that question; but so far it has not interested us.

50,981. You have had no experience of that yourself?—No.

50,982. *Sir Henry Lawrence*: Do you suggest that the growing of castor seed should be prohibited in the neighbourhood of cotton fields? Is that your point?—Yes; it should be grown in different fields away from other crops.

50,983. *The Chairman*: Have you had very frequent complaints with regard to this matter, and is it really an important factor?—Yes; last year we had complaints again coming to us about three or four times.

50,983A. *Sir Henry Lawrence*: From whom do the complaints come?—Mostly from the crushers at home. The complaint is that the cattle are poisoned by eating cakes containing a tinge of castor oil in them.

50,984. But do the cattle really die by eating cakes which are mixed with a little castor seed?—We do not know, but that is the complaint.

50,985. *The Chairman*: You mentioned a threatening competition in the matter of groundnuts from East Africa. Is Indian produce threatened in any other quarters?—Also linseed from Argentine and wheat from Australia, Canada, America.

50,986. Are any other oilseeds being grown in increasing quantities in Africa?—Not that we know of except linseed to a smaller extent. Cotton seed is on the increase.

(The witness withdrew.)

Mr. R. G. GORDON, I.C.S., Collector Nasik.

Replies to the Questionnaire.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) So far as I am aware, with regard to the three districts with which I am specially acquainted, viz., Kolaba, Bijapur and Kaira, not very much has been done to influence and improve the practice of cultivation. The farms in Nadiad (Kaira) and in Alibag (Kolaba) have, I believe, been given up because they were not practically effective. The only improvements which I can think of at present, writing apart from official information, are the introduction of an improved cotton into Bijapur, of groundnut into Kaira and of oil-engines for working pumps in the latter district. I believe that the Alibag farm failed to make any appreciable improvement in the yield of the rice crop in spite of many years' trial.

(*b*) In connection with field and other similar operations it is necessary to remember that two different classes of cultivators have to be catered for. There is, first, the man with a fairly large holding and a certain amount of capital who can afford to take advantage of new and comparatively expensive implements, manures, &c., and the small men, who form the vast majority of the cultivators who have little or no capital and live from hand to mouth on an acre or two of land, probably with supplemented land held on lease. The latter are not really agriculturists in the true sense of the word—that is, men who live solely on agriculture—but are labourers with a little land, and their agriculture is, properly speaking, a subsidiary operation with them. The latter require to be shown new and improved species of crops which they can take up without any additional expense to themselves in the way of extra capital, expensive implements, &c., i.e., they want to be shown an immediate profit. The best way to do this is in the villages themselves by inducing good cultivators to use the new crops,

&c., and thus proving the facts to their neighbours. In order to do this the latter should be treated generously, and Government should stand the loss if one is made.

(*d*) The best example I know of an improvement in agricultural methods was that of the general use in the Bijapur district of the mechanical castrator for plough bullocks at the instance of Mr. Henderson, I.C.S., the then Collector, in about 1920 *et seq.* In that district the number of such castrations exceeds those done in the whole of the rest of the Presidency, owing to Mr. Henderson's work. It is pitiable that the Local Boards elsewhere do not take up this castrator to the great benefit of the agriculturist.

QUESTION 4.—ADMINISTRATION.—(*c*) (i) I am of opinion that the Agricultural Department should be brought in closer touch with the Revenue Department than it is at present, as the latter, unfortunately, know only too little of what the former are doing. I think also that the Agricultural Department should work more on district lines than they seem to be doing at present, though I may be maligning them for want of information. The needs of each district should be worked out and definitely stated, and a district report should be issued each year showing what has been done therein and the results. The reports of the department deal with the whole Presidency, and while this is necessary I think that, in order to interest the district people and to show that they are not being neglected, there should be district reports.

As regards the Veterinary Department, they do very good work in connection with epidemics, but here again I would make the same suggestions as above.

QUESTION 5.—FINANCE.—(*a*) I have no suggestions here except the further spread of the co-operative system. A land bank *ad hoc* would not be in sufficiently close touch with individuals to make it successful, and would, therefore, find both the making of loans and their recovery very difficult.

(*b*) I am not in favour of any further extension of the *taccavi* system. It is difficult enough to work as it is. Thus, in connection with grants under the Land Improvements Loans Act in the Bijapur District, I found that a large proportion of the wells for which money had been granted were useless, either because the money had been misspent, or the well had failed, or enough money had not been granted and more could not be given, so the cultivator was saddled with a debt to Government for life. As for grants under the Agriculturists' Loans Act, they are almost impossible to check at the time of grant, and have quite properly now been restricted to times of famine.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (i) Bad seasons, purchases of agricultural stock, seeds, land, &c., extravagance on wedding and other ceremonies.

(ii) The bania and other castes acting as such.

(iii) Poor seasons, laziness, impossibility of repayment.

(*b*) No general measures are possible or desirable. Under the Bombay system of land tenure there is the so-called "New tenure" under which rights of sale and mortgage are restricted, but for all practical purposes that is only applied in the case of lands which had been forfeited at the time of the famine of 1900 and were re-granted to their occupants of the backward classes on these terms. To apply any such restrictions generally would mean that good agriculturists would be unable to get loans on reasonable terms for their agricultural operations.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) and (*b*) I have no doubt that this question of the sub-division of holdings is one of the, if not the most, important questions with which the Commission will have to deal, for it is not much use working out great schemes of agricultural improvement when the holdings are so small that the agriculturists are unable to take

advantage of them. I may say that the difficulties to be faced are not merely of the sub-division of holdings, but that of the sub-division of sub-divisions of holdings. Thus, in North Gujarat, a cultivator will ordinarily hold an area of dry-crop, rice and black-soil lands, and when he dies his sons take shares in all the three classes. But how to prevent or cure these conditions is a question of enormous difficulty. The chief cause of sub-division is the large population combined with the laws of inheritance. To limit the population can only be done by methods of birth control, which are foreign to Indian mentality, while to interfere with the laws of inheritance would be too much in advance of public opinion to have any chance of success at present. I do not think, therefore, that much can be done to prevent the sub-division of holdings. As for the sub-division of the sub-divisions of holdings, this should be met so far as possible by education in the rural schools with articles in the text-books pointing out the evil of the practice, and by actual attempts at consolidation when such as that achieved by Mr. Calvert in the Punjab. I regret that I have no practical experience of consolidation, so I do not care to give my opinion as to methods, or as to part (*c*) of this question.

QUESTION 22.—CO-OPERATION.—(*c*) Yes, no less than is done in the case of Town planning schemes under the Town Planning Act.

(*d*) My only recent experience is of co-operation in the Bijapur District. I cannot say that the societies have been very successful there. The capital is mostly small and cannot meet the agricultural needs of the population. On account of recurrent bad years there has also been a difficulty in making recoveries. There is also a lack of educated men taking an interest in the work.

QUESTION 18.—AGRICULTURAL LABOUR.—The questions asked do not seem to cover any of the conditions of any tract with which I am familiar. The chief labour difficulty with which I am acquainted is that during the cultivating season there is always a shortage, and during the slack season there is equally always a surplus; hence, during the former season landholders have to pay higher rates than they like, and during the slack season labourers do not get as much work as they want. So far as my experience goes, labour is remarkably mobile nowadays as compared with the past. Thus, in the case of the Bijapur district, in times of scarcity a large proportion of the population leave the district to seek labour in places where there are better crops, and in the Kaira district there is an annual migration to Broach and elsewhere for cotton picking. In the Ratnagiri district enormous numbers migrate to Bombay seasonally every year, and so on.

Labour conditions, in short, seem to present a peculiar combination of under-population and over-population at different times, the latter being due not merely to the ordinary seasonal fluctuations but also to famine and scarcity. I am afraid that I can suggest no remedy, except village industries on which I have no very clear ideas.

QUESTION 23.—GENERAL EDUCATION.—(*a*) As regards education in general I will give two recent experiences of my own. I was talking to a cultivator and he told me he had a son aged 17 who had studied up to the seventh vernacular standard; the result was, he said, that his son was of no use for agriculture or in fact for anything because he knew nothing about agriculture and had no desire to learn, it and having failed to pass the seventh standard he could get no service. The second case was that of a boy about the same age who had studied in a high school, but had failed to pass the Matriculation examination and so "could not get service," hence he considered that his life was ruined. These examples typify the general attitude towards education, that it is a training for something other than agriculture. The fact is that agriculture is a hard life and unless a boy is inured to it from an early age he does not like it, and it

is impossible for a boy to do agriculture and education at the same time if he is the son of a small holder and not an employer of labour.

(*b*) (i) Here again I am afraid that I cannot be helpful. I have no personal knowledge of the schools with an " agricultural bias " which have recently been started so cannot say how they work, but, though it is possible that they may achieve some good, there is the fundamental difficulty to which I referred above. We are here also, as usual, up against the supreme difficulty of the very small of size holdings and the lack of capital which make it a problem for those who are educated to put into practice what they may have been taught. I must admit also to having doubts how far agriculture can be taught in schools to boys of 14 or 15 who have had no practical experience and will have few opportunities of putting the theories taught them into practice.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(*b*) I am very decidedly in favour of a far greater extension of economic inquiry than is done at present. Every officer who has been intimately connected with the settlement of the land revenue as I have been must feel the need. There is a large amount of information lying unused in our Record of Rights and other statistical papers which would throw a great light upon the facts, and it is a thousand pities that it is not used. As regards methods of inquiry I should be inclined to advocate a combination of extensive with intensive inquiry; the former to deal with the whole talukas on broad lines, the latter with individual villages on the system adopted by Dr. Mann, though in rather less detail.

I may add that I consider that the decennial census should go into more detail than it does at present with regard to caste by districts, e.g., in Gujarat the distribution of caste is of great importance from the economic point of view, but no statistics are available under existing methods.

QUESTION 26.—STATISTICS.—(*a*) (i) There is at present very considerable variation in the accuracy of statistics of cultivation and crops, which is due largely to the difference in the classes of crops. Where, as in the Konkan, there is practically only one annual crop, viz. rice, which is sown every year in the same areas, the statistics are reasonably accurate; but where, as in Gujarat, practically all crops are mixed there is much inaccuracy on account of the difficulty of calculation which would be unavoidable under present conditions even if the village officers did all their work in the field which it is to be feared many of them do not. Nor have the superior Revenue staff sufficient time to check crop statistics properly in addition to their other miscellaneous labours. So far as the provision of more accurate formulae is concerned, I believe that the Agricultural Department have the work in hand, but the question is how far they can be put into effect with our present staff of village officers.

(ii) A proper estimate of the yield is of great importance, not merely for statistical purposes, but also for the use of the revenue officer for revenue purposes. I believe that the Agricultural Department have this work in hand also; but here again we are met with considerable difficulties in a district like Bijapur where the rainfall varies not merely from tract to tract, but from village to village and even within the same village. The question of staff also comes in the way for the reasons given above; also the fact that the statistics are to be collected not merely for purely statistical, but also for revenue purposes, as the agricultural population are interested in keeping the figures as low as possible. Better methods and better staff are the only solution.

(ii) I think that the enumeration of livestock and implements is sufficiently well done at present.

(iv) As regards land tenure, the important question for which statistics are particularly necessary is the area rented, as it is of great economic interest. The incidence of the land revenue on the total population is easily

ascertainable, but not on the agricultural population on account of the difficulty of deciding what that population is, e.g., is a Bania who leases land and trades at the same time one of that population? Then again there is the difficulty of deciding what is the size of the labouring population as so many labourers either have a little land of their own or lease some from others. The whole thing in fact requires to be worked out far more carefully than it has been in the past by the means of economic surveys such as I have proposed above.

(v) The proper arrangement and publication of agricultural statistics would naturally follow on the undertaking of these surveys.

Oral Evidence.

50,987. *The Chairman*: Mr. Gordon, you are of the Bombay Presidency and you are on special duty?—I am now Collector of Nasik.

50,988-9. How far is it the custom in your service to regard revenue officers as responsible for the general economic welfare and well being of the districts?—In the ordinary way, I do not think we regard ourselves as at all responsible. In the General Administration Report issued every year, we are not asked to say what measures we are taking in that direction.

50,990. Do you think that is well? Would you not like to see the members of the Service made to feel that they are directly responsible for the general welfare?—Do you think of including all departments, Police, etc.?

50,991. I think of economic welfare?—That covers a very large ground. We are responsible for the Police; we have a certain amount of connection with Irrigation; we are supposed to visit hospitals and dispensaries and see that they are going on well. But it is diffused responsibility rather than what I would call special responsibility to produce definite results at the end of the year.

50,992. That is perhaps more a matter of individual point of view than anything else. My point is to discover from you whether you think that the general welfare of the rural population might be promoted if officers of your service felt that they were personally responsible in their districts for the economic welfare of the people and for the betterment, in the widest sense, of the rural population?—I think it would be a good thing, but it would mean bringing the other departments under us.

50,993. You would encourage the members of the Service to take a greater interest in all that concerns the general welfare of the cultivator?—Yes.

50,994. On the question of Finance, Question No. 5 (*a*), you express the view: "A land bank *ad hoc* would not be in sufficiently close touch with individuals to make is successful and would therefore find both the making of loans and their recovery very difficult." Are you thinking there of the experience of Egyptian land banks?—I have only heard vaguely about that.

50,995. I was going to ask you whether you would envisage the ordinary co-operative societies providing long term credit?—They do at present.

50,996. Long term credit? It is a very limited amount; it is mainly short term credit, is it not?—I think there is a large amount of long term credit; I have not got any details of it.

50,997. Do you say that the demand for long term credit in the districts with which you are familiar has been met by any existing concerns?—You mean long term credit for the purpose of paying old debts?

50,998. Also for other purposes such as improvements?—No; I do not think it is sufficiently met.

50,999. Do you suggest that the deficiency should be made up rather by an extension of credit societies than by setting up of land mortgage banks? —Certainly.

51,000. On page 417 you are talking about the problem of fragmentation, and in answer to our Question 7 you say: The difficulties to be faced are not merely of the sub-division of holdings, but that of the sub-division of sub-divisions of holdings." I think we have been accustomed to speak of the division of individual holdings for the purpose of inheritance, but in describing the scattered plots of each holding; we have used the term " fragmentation "; is that what you mean here?—It is not merely the holdings as a whole, but even the sub-divisions of a holding are divided.

51,001. What do you say about compulsory consolidation? Have you any views as to its feasibility?—I have no practical experience of it.

51,002. You do not wish to say anything more on that?—No, I do not.

51,003. On page 417, in answer to our Question 18, on Agricultural Labour, you say " The chief labour difficulty with which I am acquainted is that during the cultivating season there is always a shortage and during the slack season there is, equally, always a surplus." Is that a cotton-growing district?—It is the Bijapur district, and it is partially cotton growing.

51,004. Is there a shortage in the picking season as well as in the cultivating season?—In the picking season.

51,005. Do they come for the actual cultivation and sowing?—No. They come for the picking. In all districts there is the complaint of shortage of labour during the cultivating season.

51,006. I think you have had experience of the carrying out of economic enquiries into the conditions in various villages?—In a minor way. I have not taken up a whole village.

51,007. Have you made a special study of the problem?—No.

51,008. Would you regard such enquiries as important and their results as valuable, provided they are accurate?—I think they are essential.

51,009. As the basis for a proper appreciation of the problem and also for the shaping of policy?—Most certainly.

51,010. Your experience of providing loans under the *Taccavi* Acts has not been altogether happy, and you are not in favour of a further extension of the system?—No.

51,011. How do you account for the difficulties in securing repayment? Is it due to an inadequate examination of the grounds upon which *taccavi* loans are sought?—I will speak again with reference to the Bijapur district. The very large arrears of *taccavi* there are due to the fact that in famine times there is a rush of applications. The money has to be given to a large number of people; there is a very small staff, and the result is that the thing has to be done without the necessary examination. As regards wells, I made considerable enquiries in Bijapur, and I found that a large number had not been completed, or had fallen down, because again of the difficulty of finding out how much a man has to spend, whether he is going to dig his well properly, or whether the soil is suitable. I found that 50 per cent. of the wells on which *taccavi* had been granted were useless, and the man was saddled with a *taccavi* loan for the rest of his life.

51,012. And no productive improvement produced?—No.

51,013. Have you any experience of moneys provided under the *Taccavi* Acts being placed at the disposal of the actual cultivator through the medium of co-operative credit societies?—No.

51,014. Does that plan commend itself to you?—Yes, it does.

51,015. The money, so far as possible, should be lent to co-operative societies?—Yes.

51,016. Have you ever heard complaints that when *taccavi* is given out directly, less than 100 per cent. of the loan reaches the cultivator?—Yes, I have.

51,017. Is there any substance in those complaints?—I think there is substance in the complaints, but it is very difficult to prove the facts.

51,018. I think you have carried out settlements in certain districts?—Yes.

51,019. In what districts?—I have carried out a settlement in the Dhandhuka taluka of the Ahmedabad district, and I have just been revising the settlements of five talukas in the Kaira district. I have also done settlements in the Konkan, in Ratnagiri and also in the Kolaba district, 12 altogether, I should think.

51,020. We have a note of yours which I think is a report written by you on the settlement effected by another officer; is that so?—Yes.

51,021. I think you examined the settlements which had taken place over the whole tract consisting of the talukas of Anand, Borsad, Nadiad, Thasra and Kapadvanj?—Yes.

51,022. And in all those tracts you found that during the period of the last settlement there had been a decline in the number of cattle, cows, buffaloes, ploughs and carts?—Yes.

51,023. Which suggests a decline in the standard of cultivation?—Yes.

51,024. How do you account for that decline in the standard of cultivation, assuming that it exists?—Previous to 1900, Gujarat, in which these areas are included, used to be immune from famine. In 1900, there was the great famine, and since then there has been a succession of very poor years, which I have summarised. Fourteen years out of 30 have been poor years or years of famine; there has been plague and influenza, and the population has been reduced.

51,025. The incidence of land revenue is not within the terms of reference of the Commission, and therefore I do not propose to deal with that question. But I should like to ask you whether you regard this decline as accidental and due to a most unusual series of bad years, or whether you think there is some lasting cause of decline in existence, apart from the series of bad years?—I do not think so at all.

51,026. You think you have struck a very bad patch?—Yes.

51,027. Do you see any reason why, if the next 10 years show a normal average of good, bad and indifferent years, the standard of cultivation and prosperity of the countryside should not recover?—Not at all. It is recovering in the past 5 years in 3 talukas. I give figures to show that.

51,028. Do you yourself think that there is any lowering of the standard of cultivation that is controlled by the practice of the cultivator? Do you think there is any less knowledge of husbandry than there was?—By no means. On the contrary, I have given figures about the introduction of mechanical pumps, a large number of which are being used in those districts.

51,029. You show that the population has declined in the period of settlement, in Anand by 13.53 per cent., in Borsad by 11.16 per cent., in Nadiad by 18.80 per cent., in Thasra by 19.69 per cent., and in Kapadvanj by 18.82 per cent. But it does not appear that in the decade between 1911 and 1921 there has been any decline, which I should have expected, as those years contained the influenza epidemic. The drop occurred between 1891 and 1901 on account of the great famine?—Yes.

51,030. But there was no drop between 1911 and 1921?—No.

51,031. Would you not expect to find a drop there on account of the fact that the influenza epidemic occurred within those years?—I should; 6 per cent. I should think.

51,032. Can you account for that at all?—I can only account for it by the fact that they are prolific.

51,033. It is natural regeneration; it is not an influx for outside?—Certainly not.

51,034. You, I think, rightly, lay emphasis on the importance of the number of working bullocks in these areas. In the matter of animal husbandry, do you think the practice in Gujarat is as good as it used to be? Is as much care taken in the selection and feeding of cattle as was once the case?—I should not like to give a definite answer to that question. I have not been in Gujarat for some years, but in a way it strikes me that the cattle are not as big or as large as they used to be. I should not like to give a definite answer.

51,035. Gujarat is one of the few districts where the land is enclosed to any important extent?—Yes, it is very much enclosed.

51,036. Do you think that the fact of enclosure is responsible for the good quality of cattle in Gujarat as compared with other districts, in that it has enabled the cultivator to some extent to control breeding?—It has, I think, to a certain extent. The animal is not able to wander all over the face of the country, and so it is not possible to get so many half-sized or quarter-sized animals as in the Deccan and elsewhere, where cows wander about all over the face of the countryside.

51,037. Is rack-renting prevalent in Gujarat?—It is, in a part of the Kaira district.

51,038. What is the system of ownership there? Outright ownership and letting of the land to tenants?—In the part of the country I am talking of there is what is called the *narwadari* tenure in which practically all the Government land in the village is held by a body of joint owners, and they lease out their lands to tenants.

51,039. They collect the revenue?—They collect the rent and pay the revenue to Government.

51,040. They can raise the rent as much as they like?—Yes.

51,041. Does it affect the revenue?—That is a question which is yet to be decided. That is a point in dispute, whether the assessment should or should not be based solely upon the rental value. Under the present system the rents are taken into consideration at the time of settling the assessment. The precise question is, what consideration is to be given to the rental. It is a point which will have to be considered at the time of deciding the rates at which settlements are to be made.

51,042. What is the pressure of the population on the land in that particular district you speak of?—Very great.

51,043. Is the demand for land very great?—Yes, therefore the rents are high.

51,044. Have you worked out, at all, what proportion of the produce the rents represent?—I tried to do so, but I have not been able to get very satisfactory conclusions in this district, but in the Kolaba district I tried to arrive at accuracy, and there I found that it was one-twelfth of the produce.

51,045. The assessment was about one-twelfth of the produce?—Yes.

51,046. What about the rents?—The rents averaged about half the produce in the Kolaba district

51,047. Did the rent include the assessment?—Yes.

51,048. Are the rents high in the Kolaba district?—They are very high. They are taken in kind, not in cash; so many maunds of grain per acre.

51,049. Can you give us an idea of the exact proportion, there, that rent bears to the total outturn?—About half.

51,050. *Sir Henry Lawrence*: What is the proportion in Kaira?—I have tried to work it out, but I could not get any very accurate statistics on account of the large amount of mixed crops in the Kaira district, sometimes eighteen crops in a field. I found it extremely difficult to get exact figures, especially this year as the crops are not good. I was not able to get any really good figures, but I found that in the Charotar area of the Kaira district the rents are between three and four times the assessment, up to six and seven times in certain villages.

51,051. *The Chairman*: What do you say about the standard of living of the cultivator in the districts with which you are most familiar? Has it risen, or fallen, or been stable during the past 20 years?—I should say to a certain extent it has risen. I should give, as a criterion of that, the general use of kerosine oil. That would be a kind of a higher standard. Whether the cultivator eats more food or whether he has better clothes, I am not able to say.

51,052. Has there been any change of diet?—I cannot say.

51,053. Is indebtedness heavy in Kaira?—Yes.

51,053A. Are the co-operative societies active in the district of Kaira?—I do not know anything about that, because I have been there for about three months only.

51,054. Are there any co-operative societies there at all?—There are some I believe.

51,055. You have not got into touch with them yet?—No.

51,056. Have you formed any view, during your service, of the usefulness or otherwise of the co-operative credit movement?—I think it is extremely useful where you can get really good men to take an interest in it. It depends upon men rather than on anything else. If you get one or two energetic men in a village, certainly the movement becomes exceedingly useful. But where the people do not take interest, there the movement languishes and dies.

51,057. Would you be in favour of strengthening the official side of the movement in the Presidency or would you rather leave the shepherding of these societies to voluntary workers?—I should prefer to leave it to voluntary workers as far as possible.

51,058. Have you any personal experience of the efficiency of these voluntary workers?—To some degree, yes.

51,059. Are you satisfied with their efficiency?—I am not.

51,060. Do you think voluntary workers understand the principles of co-operation?—They do.

51,061. Do they grasp the business side?—Yes.

51,062. Do they preach the true spirit of co-operation to the cultivator members of the co-operative societies?—Yes, so far as they are able, but it is a question of local influence. It is very difficult to have local influence. All the same, I would prefer that local people should be, as far as possible, given the task of spreading co-operation.

51,063. In your view, does the cultivator stand in need of further capital, or do you think he is adequately financed on the whole?—I think he is not adequately financed. I certainly think he stands in need of further capital for improvements.

51,064. Long term capital?—Yes. In the Bijapur district, for example, one of the greatest improvements necessary is the *bunding* of the slopes. There are an enormous number of them. The surface is washed away. Small *bunds* or banks put across would make an enormous difference to the outturn of the land, especially in times of famine.

51,065. The cultivators cannot afford to get the work done?—No.

51,066. Are there opportunities for well-sinking in Kaira?—Unfortunately, in Kaira, during the last 20 years or so, the water level has sunk by something like 14 feet. Wells are being sunk in places where they think they can get water, but it is not a paying business.

51,067. Is that due, do you think, to the sinking of the water table? Is it due to the number of wells that have been sunk or to a series of dry years? —That is a question which is disputed. There are several explanations given; one is that of dry years and the number of wells sunk is another. There are other explanations also.

51,068. What are the other reasons?—A large number of drainage channels have been opened up in the Kaira district. They may possibly draw off the water.

51,069. Are they below the sub-soil water level?—No, they are on the surface, but they may carry the water off and prevent it from sinking.

51,070. Who suggested it?—The late Settlement Officer.

51,071. Was he an engineer?—No.

51,072. Have you any other explanations to offer?—There may be possibly some geological changes.

51,073. Who suggested that?—I think the Settlement Commissioner.

51,074. *Sir Henry Lawrence*: What is the present depth of water?—40 to 50 feet.

51,075. *The Raja of Parlakimedi*: What is the procedure adopted in this Province for enhancement and improvement of existing irrigation?—You mean improvements carried out by the Irrigation Department or by private people?

51,076. Carried out by private people?—They are not taxed.

51,077. In the case of wells or tanks?—As they are done at private expense, at the time of each settlement no enhancement is made.

51,078. At any period?—At no period.

51,079. What are the reasons for the annual migration from the Kaira district?—People have to migrate in order to live.

51,080. Does that mean that there is a surplus population?—The population there is between 700 and 800 per square mile.

51,081. Do they come back prosperous, comparatively speaking?—They go to Broach and other districts where they do cotton-picking, and then they go back again or they go to the gins.

51,082. Is all the cultivable land available fully under cultivation now in that district?—Practically.

51,083. Are there no waste lands?—There are some in the north of Kapadvanj taluka and some other talukas, but there are none in the south.

51,084. Have there been applications for the grant of such lands?—In the northern talukas about 50,000 acres of waste land have been given out since 1913 for cotton cultivation.

51,085. Is provision made for grazing purposes?—Yes.

51,086. You say that at Bijapur the mechanical castrator is very popular. Why has it not been taken up by the other districts?—I cannot say.

51,087. Is it because particular attention was paid to that district in propaganda work?—I think so. I am told there are some religious scruples in Gujarat against adopting it. I do not know whether there is truth in it.

51,088. Do you think there has been sufficient propaganda about this method of castrating?—I do not think so.

51,089. In any other part of the Province?—No.

51,090. *Mr. Calvert*: Between the man with a fairly large holding and a certain amount of capital and a small man struggling hard to keep going, is there a sharp line of distinction, or is there a gradual slope, one passing into the other?—It is a gradual slope.

51,091. Is the Collector the chairman of the District Local Board?—No.

51,092. On this question of labourers in the slack season wanting work, do they really want work or do they simply look about for means of subsistence? Is it really the fact that they are disinclined to do any more work than is necessary to maintain life, or are they really well inclined towards industry? —I can only give the facts. From the Ratnagiri district 40 per cent. of the population go to Bombay every year, and from the Kaira district they migrate to find work; they would not do that unless they wanted to do it.

51,093. In answer to the Chairman you mentioned that there was great scope for labour in the fields, and you say here that in the slack season they are wanting work. Why do they not work on their own fields?—Because the labourers have not got their own fields to work on.

51,094. *Sir Henry Lawrence*: Is there scope for terracing in Kaira?—There is scope in Bijapur.

51,095. *Mr. Calvert*: With regard to the question of capital, you mention the need for building *bunds* and terraces. In that district, what is there to prevent the people working on their own fields?—I was rather talking of scientific *bunding*. There is great scope for doing it on scientific lines, and we are trying to get it done in the Bijapur district.

51,096. Why do you say that the rivers are useless for irrigation, in connection with your note about Kaira district?—They are too small and very deep, and there is no possibility of putting up *bunds* or holding up a sufficient supply of water for the purpose of irrigation.

51,097. Do they use any water lift?—No.

51,098. With regard to the reduction of cattle on the figures given by you, with an average holding of round about four acres per family, it is suggested that one pair of bullocks for three families would probably suffice?—Yes.

51,099. Is this reduction of cattle a reduction of surplus cattle, or is it a reduction of cattle below the limit required for the purpose of cultivation?—It is a reduction below the limit required for the purpose of cultivation.

51,100. You say it is universally agreed by the cultivators that 12 acres is about the limit of area which can be efficiently cultivated by a pair of bullocks. Do you mean efficiently cultivated or ordinarily cultivated?—Efficiently cultivated; that is to say, they plough the requisite number of times.

51,101. In a very careful inquiry made in the Lyallpur district of the Punjab, which is the richest tract in India, and where there is no question of shortage of money at all, it has been found that a pair of bullocks working on 12 acres work for 69 days in the year. When you use the word "efficiently," are you not really thinking of the word "ordinarily"? —I mean the ordinary number of times; I do not see any difference between efficiently and ordinarily in this connection; it means the same thing.

51,102. So that on the Punjab calculation your bullocks would be lying idle for about 300 days in the year?—Yes.

51,103. Is there any reason to believe that the work done here in the course of the year by a pair of bullocks is higher than that?—I cannot say.

51,104. What I am driving at here is the difference between the ordinary conception of a cultivator as to what should be done by a pair of bullocks, and what could be taken out of those bullocks by ploughing a larger area? —But he has not got a larger area to plough.

51,105. Then, could a pair of bullocks actually cultivate more than 12 acres?—I cannot say; these figures were given me by the cultivators.

51,106. And even assuming the 12-acre limit, does that suggest to you that there must be a waste of bullock power in a population whose average holding is four acres?—At present they have to cultivate 17 acres according to the figures, so that there is no waste of bullock power.

51,107. Are you able to inform us whether in the Kaira district alone, when prices have risen round about 47 per cent., there has been a corresponding rise in rents?—No, I cannot.

51,108. *Mr. Kamat*: With regard to the estimate that 12 acres can be ploughed by a pair of bullocks efficiently, and the comparison which Mr. Calvert was trying to draw between the Punjab and Kaira, have you seen the nature of the soil in the Punjab?—No.

51,109. It is a light soil where the bullocks can do more ploughing than is the case on black soil?—Kaira does not have black soil either; it is light soil.

But the area which a pair of bullocks can deal with depends also on the nature of the soil?—Very much so.

51,110. In answer to the Chairman regarding revenue officials and the economic welfare of the agriculturists, you said that the revenue officials looked after police protection, irrigation, and such like matters. Do I understand you to say that, in actual practice, the revenue officials do not care to inquire whether agriculturists are becoming more prosperous or whether they are becoming less prosperous?—My point was that they were not directly responsible for these things; they do inquire into these things, but they have not got to produce, at the end of the year, certain results.

51,111. *Mr. Calvert*: Is there not a Bombay Government Circular placing upon the Collector the duty of watching over the economic welfare of the people under his charge?—Quite so; but they are not made directly responsible in the way of producing results. They have not got to submit any report at the end of the year showing what has been done.

51,112. The Collector is held responsible by Government for watching over the economic welfare of the people in his charge?—Only in a general way.

51,113. *Mr. Kamat*: When you say that they are not made directly responsible, do you mean that there should be a Government Resolution issued making them responsible?—What I mean is that they are not responsible at the end of the year for seeing that the cotton crop has increased or that the bullocks have increased in number, or anything like that; they are not required to submit a report at the end of the year as to the results obtained, but they are made generally responsible; that was my point.

51,114. Speaking about the revision of settlements and enhancement of assessments, do you take into account the economic facts to which you have alluded in your notes, as, for instance, the reduction of cattle and

the reduction of carts and so on, at the time of revising the assessments? —Certainly.

51,115. Or, do you only take into account the rise in prices 30 years ago as compared with the conditions obtaining to-day?—No.

51,116. In what manner do you take into account these factors? Is it by not reaching the highest maximum, 33⅓ per cent.? Is that how you give credit for these economic facts?—I am not sure whether I can tell you what I have done at the last settlement, because the matter is more or less confidential, I think. I have submitted my report to Government, and I am not sure whether the matter is not confidential.

51,117. Throughout the course of 30 years, are the years of good rainfall, the years of scarcity, and the years of famine taken into account?—Yes

51,118. Is there any such thing as a tax on wells and subsoil water in Gujarat?—Yes.

51,119. Do you think, economically, it is a good practice to tax subsoil water?—The subsoil water tax was a substitute for an old well tax made under the previous settlement. That was thought unfair, as it taxed labour and enterprise, and so the amount of taxation which was taken by the well tax was spread, by a very light rate, over the land which was thought to contain sub-soil water, the idea being that the amount of Government revenue would remain the same, and that those persons who undertook the business of digging wells would not be taxed at specially high rates; that was the intention and purpose.

51,120. But, on the whole, do you think or do you not think, that this tax discourages the sinking of wells, and therefore irrigation in Gujarat? —It certainly does not discourage it.

51,121. If the tax were taken off, you do not think more wells would be sunk?—Certainly not.

51,122. In answer to the Chairman, you stated the standard of living of the agriculturist was rising slightly. As a Settlement Officer have you based that statement on statistics or just on your general impression? —On general impressions.

51,123. Is it not the duty of a Settlement Officer to collect definite statistics showing whether the purchasing power is going down or whether it is going up?—It is not.

51,124. Is it not a fact that the Settlement Officer has the best facilities for collecting such statistics?—He has got no time for that.

51,125. He has no time, but he has the facilities to collect the facts and figures?—Yes, but I should much prefer it to be done by a definite economic survey.

51,126. Would you like to have a committee of economic survey going round?—I do not specify the manner in which it may be done, but I consider that economic surveys of districts should be made.

51,127. Through which agency would you have those surveys carried out?—In the first instance, by Government officials in conjunction with non-officials.

51,128. Would you have it done intensively or only in a diffused manner? Both intensively and extensively; intensively with regard to a certain group of villages and extensively with regard to certain larger areas.

51,129. I gather from your replies that the revenue officials are not in close touch with what is being done on the co-operative side?—I was talking about the Kaira district at that time. As regards Bijapur, I have my notebook here which will give the figures about co-operative societies.

51,130. In Bijapur you had more time than in Kaira; is that so?—I was on special duty in Kaira and that only for three months.

51,131. Do you think it would be a great advantage if Collectors took more interest in co-operative societies?—Yes, certainly.

51,132. *Dewan Bahadur Malji*: You told the Commission that, as Collector, you had to interest yourself in matters connected with the economic welfare of the district only at the time of writing the annual administration report; did you say so?—That is a wrong impression.

51,133. After the annual stocktaking at the time of the administration report, do you interest yourself, as Collector, in matters pertaining to the economic well-being of the district?—I take interest not only at that time, but also on my tours.

51,134. Do you try to see that the shortcomings and drawbacks of the people are brought home to them to any extent?—Certainly.

51,135. As regards cost of cultivation, is it your view that the upkeep of bullocks has become more costly to the agriculturist?—The cost of keeping bullocks has largely increased; therefore, fewer are kept.

51,136. With the result that cultivation suffers in efficiency?—I think so; yes.

51,137. As far as you have been able to see in Kaira, do you find that the rents have more or less approached rack-renting?—In certain parts, yes.

51,138. Would you have legislation in this regard?—I should like to have enquiries made with a view to legislation.

51,139. You have referred to the *narwadari* tenure in Kaira. Do you think that that system narrows the credit of the cultivator? *Narwa*, as you know, cannot be disposed of except in its entirety, and therefore, in spite of the fact that the agriculturist holds some land, he commands no credit; is that not so?—The *narwadar* seems to get sufficient credit, as far as my experience goes.

51,140. You have some experience of *talukdari* villages also?—I have.

51,141. In the *talukdari* villages the situation is worse for the cultivator?—True.

51,142. In fact, they have no interest in the land, other than as tenants at will?—Yes; I agree.

51,143. So they take very little interest in matters agricultural?—That is so.

51,144. As regards demonstration on private fields, you are in favour of such demonstrations, even if Government have to guarantee the cultivators against loss?—Yes.

51,145. As regards *taccavi*, is there any rule by which the loans could be written off after a certain time? Supposing the loan drags on for a number of years what is the procedure adopted?—If it cannot be recovered by such measures as the sale of land, etc., then it is written off.

51,146. Is there any limit to the period within which no attempts could be made to write them off?—No.

51,147. Is there any limit to accumulation of interest? Does the system of *damdopat* apply to taccavi loans?—No.

51,148. So, more than double the principal can be claimed when the debts are allowed to remain on the records?—Yes.

51,149. You seem to hold the present system of education responsible for the decline of interest in agriculture?—I only gave an example of

the boys; I would not make a general statement that the present system of education is responsible for that.

51,150. You quoted some instances where you found that the finished products of the present-day schools yearned after employment on work other than agriculture, and in that way you suggested that the interest taken in agriculture is disappearing?—Yes.

51,151. You have made one or two observations in your note regarding record of rights. May I know whether you attach great importance to village officers holding their offices in the village itself and making those records available to the people as much as possible?—Certainly.

51,152. Is this being done in practice?—Not always; no.

51,153. The complaint is that the *talatis* are more interested in getting their perquisites than in making these records popular; do you agree?—That I cannot say.

51,154. As regards the administration reports of the various departments, would you welcome the idea of publishing these reports for each district and inviting criticisms?—I have already said that.

51,155. *Dr. Hyder*: In regard to the Memmedabad and Matar talukas of the Kaira district, it is stated in the Census report that the decline in the population is due mainly to the great famines of 1899 and 1901, and also to the subsequent displacement of rice by cotton. To what extent is this correct, in your opinion?—I do not know those talukas at all. I was doing settlement work in the other talukas; I did not touch these talukas.

51,156. *Sir Chunilal Mehta*: Did the Collectors take more interest in the general welfare of the population in the past than they take now?—In the past they used to have more departments under their control than now. The Collectors of the past had, therefore, more responsibility for those departments. Now, many technical departments have been started.

51,157. Such as the Co-operative Department and the Forest Department?—Yes.

51,158. That has rather lessened the influence as well as the interest of the Collector?—Yes, to a certain extent.

51,159. Is there any means of remedying it?—It is difficult to suggest one.

51,160. If, as you suggest, Collectors were required now to send in a report of the results obtained, could they do it, without all the departments being placed under them?—I do not think I have suggested that they should send in a report.

51,161. If we wanted them to be responsible for the results, they should supply a report; that is what I understand you to say; you may correct me if I am wrong?—I said that at present they do not have to report these results; I did not say that they should have to. I suggested in my note here that there should be district agricultural reports every year, but I have not said that they should be sent in by the Collector.

51,162. Supposing the Collectors were asked to be responsible, would all those special departments have to be placed under their control?—Yes, to a certain extent.

51,163. Would it be feasible to do so?—No; I do not think so.

51,164. In fact, in the past, the Collectors used oftentimes to be chairmen of District Local Boards and Municipalities, and, as a result, they use to take great interest in the work of those bodies. That also has gone now; has it not?—Yes.

51,165. So that their opportunities of influencing the people are reduced?—They are reduced; certainly.

51,166. Can you conceive of any system by which, without absolutely reverting to the system of the old days, the Collectors could take more interest? Take the Excise Department, for instance?—It is directly under the Collector now.

51,167. Have the Collectors anything to do with investigating the drinking propensities of the people? I do not think it is part of their excise work?—They have to inquire into those matters, of course.

51,168. When you were Collector of Kolaba, for instance you found that the Excise Department gave twice as much revenue as the land revenue? —Yes, in one taluka. It varies very much from taluka to taluka.

51,169. What was the proportion?—It was twice as much as the land revenue in the Panvel taluka, the equivalent of the land revenue in the Pen taluka and one-fifth as much in Mahad taluka.

51,170. You have referred to *tals* in Bijapur, that is *bunding* and levelling. You consider that as a most important piece of work for better outturn?—I do.

51,171. Would it affect a very large area?—I think it would.

51,172. Would that apply generally to the Southern Division?—I do not know the Southern Division. I only know Bijapur district.

51,173. Have you been held up by want of funds or by want of technical advice?—Want of both funds and technical advice.

51,174. Would the cultivators be prepared to take *taccavi* for this work? Would it pay them?—I think it would. The co-operative system is the best agency for village *bunding*.

51,175. Even individual *bunding* has been proved to be very useful?—Where the man has a large area, yes.

51,176. After *bunding*, which is the next importance? Well-sinking?—Well-sinking, if you can make sure there is water there. I have found so many of the wells are useless and the money is uselessly spent. That is what I find from careful enquiries in the Bijapur district.

51,177. What about tanks?—There are no tanks in Bijapur.

51,178. *Bunding* of streams?—It has not been tried. The rainfall is not sufficient, and the streams are not big enough.

51,179. You could not do much in that direction?—No.

51,180. You have spent some years in Bijapur and a good many years in Kolaba?—Yes.

51,181. What would you suggest ought to be done for improving the general welfare of the rural population?—It is a very large question.

51,182. From the Collector's position, he may be asked to take more interest, and the other technical departments may be asked to work more in touch, and in closer co-ordination, with him, as in the case of the Agricultural and Co-operative Departments. That system might perhaps be extended to other departments, the Irrigation Department for instance? But you can only deal with certain aspects of the man's life and activities in this way?—Yes.

51,183. Would you not require something to be done with regard to his social arrangements?—We tried to do it, but without much success. In the Kaira district, where I have served, the curse of the *patidar* is the amount of money which he spends on marriages, on account of the peculiar system by which every one tries to marry a wife, or get a husband, of a higher grade. Mr. Shepherd, the Collector, had some legis-

lation passed a good many years ago in order to try and stop that. The law is on the Statute Book, but it has never been brought into operation practically.

51,184. *Sir Henry Lawrence*: What law is that?—The Kunbi Marriage Law, I think it is called.

51,185. It was in the seventies or eighties?—Yes. I give you that merely as an instance.

51,186. *Sir Chunilal Mehta*: So that, we have got to consider the cultivator in relation to his social environment, not merely as an agriculturist?—Yes.

51,187. *Mr. Calvert*: On the question of the number of days in the year on which bullocks are employed, you mentioned it as 69. We have here given to us a detailed programme of work on a 20 acre dry holding, and that shows that the bullocks are employed for 50 days in the year only. Would you accept that as correct?—I really cannot give any opinion on a matter which I have not studied.

(The witness withdrew.)

Mr. K. B. BHAGWAT, Representative, Irrigators' Central Committee, Deccan Canals.

Replies to the Questionnaire.

Replies have been prepared by a special committee appointed for this purpose. The Irrigators' Central Committee is a central body affiliating the local canal associations on the various canals in the Deccan. The association represents:—

(1) The Nira Canal Irrigators' Association, *Baramati.*
(2) The Godavari Canal Irrigators' Association, *Kopergaon.*
(3) The Pravara Bagaitdar Sangh, *Belapur.*
(4) The Mutha Canal Irrigators' Association, *Poona.*
(5) The Pandhara Bagayatdar Sangh, *Pandhara.*

INTRODUCTION.

The Association on behalf of which this memorandum is submitted consists mainly of cultivators under irrigation; but almost all the members have also dry cultivation under their control and they are conversant with cultivation of both kinds. We have tried to consider agricultural problems connected with both sides of agriculture, and we have ventured to make some general suggestions with a view to uplifting the agricultural population as such.

Before we proceed to consider the Questionnaire in detail, we think it necessary to bring to the notice of the Commission some important general factors of the agricultural situation in the country. In the first place, the illiteracy of the general agricultural population and their consequent ignorance and incapacity to tackle their difficulties are very important considerations. In the next place, the vagaries of the climatic conditions in the Bombay Presidency which directly affect the operations of agriculture are so erratic that the agricultural operations in many tracts of the Presidency become precarious. This has, in our opinion, been one of the important factors which has led to the deplorable condition of the agriculture of this Presidency. The indebtedness and even the backwardness of the agricultural classes may be mainly traced to this cause. There is the further factor that the general agriculture of the country, which is mainly dry agriculture, does not even in good seasons provide remunerative work to the agriculturist throughout the year. He has, therefore, to look out for other occupations, which in their turn reflect on his interest in agriculture;

and, in many cases, agriculture suffers because the interest of the agriculturist has been divided between two occupations. This problem also is a very urgent problem and its solution in our opinion does not lie merely in finding out a few secondary occupations for the agriculturist but in co-ordinating the agricultural industry with other small industrial activities which can be profitably worked in rural areas by agriculturists without losing their interest in the main occupation of agriculture; and with this view we have ventured to suggest a general change in the educational system of the country.

The problem, therefore, of the general uplift of the agriculturist is very vast and has become rather complex; and unless it is seriously tackled in all directions and unless definite lines of progress are laid down by the Commission and accepted by Government, mere isolated suggestions for improvements here and there, will not be of much ultimate and lasting benefit. Of course, we, with our limited knowledge and experience, may not be able to suggest definite industries for the present but we feel that the solution of the problem before us can be found only in the lines of progress suggested by us, and the actual steps to be taken must be left to be worked out later on.

The above general remarks apply wholly of course to the dry tracts only. To the irrigated tracts they may not be applicable completely because in agriculture under irrigation the agriculturist can find work to occupy him throughout the year if he wishes to be successful; and therefore increasing the irrigation facilities as well as making them easily and conveniently available to the people, will be one of the important solutions of the problem of agricultural welfare. As is well known, even the utmost increase of irrigation in this Presidency will touch a very small proportion of agriculture, and hence the importance of the lines of general improvement remains the same, irrespective of the question of irrigation. Further, even in irrigated tracts if the general level of education of the irrigator is increased it will certainly lead to better uses of irrigation facilities being made by means of introducing new crops and new methods of cultivation and also of adopting new methods with a view to exporting the products of irrigation.

We now proceed to discuss the Questionnaire in detail.

QUESTION 1.—RESEARCH.—(*a*) (i) and (ii) We admit the necessity of intensive research in all matters connected with agriculture and we suggest that more research centres should be opened in various localities with definite uniform agricultural conditions; so that the results of the research may be easily brought to the notice of the cultivators and also the cultivators may be able to refer their own difficulties to the research centres in their respective localities. As regards the organisation of the research stations we have made suggestions under the heading No. 4.

(*c*) We suggest that research should now be directed to the study of cereals, which are the staple foods of the country, viz., *bajri, juar, tur* and rice. The research should be directed to find out varieties which can withstand drought and yield heavier crops. Another line of research to be suggested is the improvement of the grasses of the country. Third line of research is an intensive study of dry farming.

We are aware that the lines we have suggested are not new. The Agricultural Department are doing something on these lines, but the reason why we mention these activities again is that these lines should now mainly engage the attention of the department for some time at least.

QUESTION 2.—AGRICULTURAL EDUCATION.—The only forms of agricultural education in the Presidency of which we are aware are:—

(1) Education given in the Agricultural College at Poona.

(2) Special schools for agricultural education, which exist only in four or five places in the Presidency.

(3) Short study courses at the college and at various Government farms.

(4) Agricultural bias schools recently introduced.

We have no direct experience of the operations of the institutions; but we have some information about them, from which we can offer some general remarks on these institutions.

In the first place, as regards the students who passed from the college, almost all of them have been, up to this time, absorbed by Government service, and very few, if any, have taken to practical agriculture; at least there is no notable instance.

As regards agricultural schools, they are not sufficiently patronised, and the reason we think, is that the parents have not yet realised the importance of agricultural education.

Short course studies are found to be useful in their own ways.

As regards agricultural bias schools they have very lately been introduced, and nothing can be said about them for the present definitely.

So, really speaking, agricultural education as such, has not assumed important proportions in the educational systems of the country for the present and, therefore, answers to all questions which are asked with reference to the present system of agricultural education would not elicit much useful information.

We must, however, admit and we would also like to impress on the Commission the fact that agricultural education is a subject of great importance for the development of agriculture in the Presidency and so we would venture to make some observations regarding our views on the subject.

In the first place, it is the deliberate view of many of our members that under an idea of giving specialized agricultural education, their children should not be deprived of the general education which is given to the children of other classes of the Presidency. In fact, many of them have expressed a strong opinion that there is no reason why their sons should not be given general education up to the matriculation standard along with such agricultural education as will prepare the boys either to prosecute, with profit, further studies in agriculture or to take up practical agriculture with a readiness to assimilate new methods and new ideas in agriculture. This is one aspect of the case.

There is another aspect also, which must be considered in coming to a right conclusion on the question of agricultural education. It is a well-known fact that in dry agriculture, which is the main agriculture in the Presidency, the agricultural operations of a year can engage the agriculturists only for a part of the year. That period may vary, according to conditions, from four to eight months, though not continuously. Now the great problem of agriculture of this Presidency is how to engage the agriculturists during the remaining four to eight months. In fact, it is well known that in the case of the generality of the agriculturists they have not sufficient land to provide for their maintenance for the whole year and so, in order to make the two ends meet, the majority of agriculturists have to find some other occupation; hence the importance of the question of the so-called secondary occupations. As the majority of the population of the Presidency are dependent on agriculture we feel that merely finding out some allied occupations as secondary occupations for the agriculturists will not solve the problem as a whole. It is, therefore, our idea that the industries of the country must be increased, and they must be so co-ordinated with the agricultural industry as to enable the agriculturist to take part in some industry without losing his interest in the agriculture. For this purpose, the growth of small industries at various centres will have to be encouraged; but if this solution is found to be on the right lines, then the question of imparting ordinary technical

education, so as to prepare the boys of the agriculturists to be able to take part in small industries, also becomes very important. The question of providing facilities for more technical education in the country has always engaged the attention of the Government and leaders of the people. Taking therefore all these circumstances into consideration, we think that the children of agriculturists must also receive some technical education. This is another aspect of the case.

The third aspect is that if we want the children of agriculturists who do, and will, form the generality of the masses to be citizens of a civilised state on an equal footing with the remaining classes, then there ought not to be any marked difference between the general education level of the agricultural population and of the other population.

When we, therefore, consider the question from all these aspects we come to the following conclusion, viz. :—

(1) That the educational system of the Presidency should be uniform.

(2) That it should incorporate, in the first stages, agricultural as well as technical education, along with literary education.

(3) That after a particular period the system should begin to bifurcate into three branches, viz. :—

(i) agricultural,

(ii) technical, and

(iii) literary, so that the boys with a leaning to particular branches may slowly proceed along the lines of their liking. But at the same time they would have a general culture, sufficient to make them feel they are citizens of equal footing with other ordinary citizens.

This may appear to be a very ambitious scheme or even very complicated; but, if we consider the problem in minute detail, we think we shall realise that there can be no profitable agricultural education by itself without a grounding of good ordinary literary education and a little of technical education too. We need not now go away with the idea that agricultural parents are averse to giving a good sound basic literary education to their boys, and, if we are to satisfy their aspirations, we think some such drastic change as we have suggested above must be made in the educational system of the Presidency. There is another consideration also. If co-operation in its various forms is to be successful amongst agriculturists, then they must be so educated as to be able to realise and to put into practice the principles of co-operation. How these ideas about the educational system of the country should be worked out by introduction of suitable courses of study into the village school, the group-of-village-school, the taluka school and the high school, are details which will have to be settled after much discussion. The question of finance also will be a very great deterrent factor; but that question will also be a great difficulty in the way of introduction of agricultural schools as such; in fact, finance will be a difficulty in the case of any suggestion for improvements made by anybody. So we need not consider the question of finance separately. We think that the above discussion of our views will sufficiently indicate our answers to the various detailed questions.

For some time, until a new general system of education as above is introduced, an intensive campaign of adult education by means of short course studies in all suitable places will have to be carried out. This will enable the present generation to resort to improved agriculture, and it will also facilitate the introduction of a new system of agricultural education for boys, as the parents will have realised through the short courses the importance of agricultural education.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—We shall answer (*d*) first.

(1) The introduction of the iron plough amongst implements.

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(2) the introduction of wide planting of sugarcane as an improved method of cultivation; and,

(3) the introduction of spraying for grape-vine plants are striking instances of successes of demonstration and propaganda, while the use of copper sulphate as preventive of smut is an instance where propaganda has failed to introduce this improvement. Generally, the reason why improvements are not taken up by the cultivators readily is the backward condition of their mental calibre. For some time, therefore, that is to say, until the general intellectual level of the agriculturists is raised, the work of demonstration and propaganda will have to be carried on intensively. So the real method to make a cultivator adopt expert advice is to raise his intellectual calibre; but apart from this, actual visual demonstration, conducted, if possible, on the fields of the cultivators and under his usual conditions, will prove to be the best incentive for a cultivator to adopt the results of the demonstration. In our opinion, the increase of such centres where actual demonstrations can be carried on under the eyes of the cultivators will be a right step for increasing the effective uses of such demonstrations. In fact, if the Indian cultivator is thoroughly convinced of any improvement, he will try to adopt it.

QUESTION 4.—ADMINISTRATION.—(a) The Department of Agriculture for each Province should be autonomous. The Government of India should have nothing to do with provincial agricultural matters. All research, demonstration and education connected with agriculture should be undertaken by the Provincial Governments themselves. The Government of India may be asked to maintain a Central Research Institute of the highest equipment for undertaking research of a very highly technical or scientific character. That institution should be under the control of an advisory body on which all the Provinces should be represented, and the institution should take up only such questions as may be referred to them by the provincial authorities.

(c) (i) The Agricultural and Veterinary Services are very inadequate at present. We should like centres for agricultural research, demonstration and education to be multiplied gradually as their want will be gradually felt. In fact, we think the Agricultural Department will have to be enormously increased, so as to be able to carry out all the recommendations which may be adopted. As regards veterinary services, we should like to have about two stationary hospitals in each taluka with one or two qualified men attached to each centre, whose duty it should be to visit constantly the various villages in the taluka in turn.

(ii) We do not think railways ever made any special attempt to provide for agricultural needs.

(iii) Road service at present is very inadequate and unsatisfactory. In fact, many villages still have no roads. The ideal should be to provide a road for each village. An enormous amount of human and bullock labour is wasted for want of made roads in many parts of the country. There is another reason why the question of providing roads on an extensive scale should now be undertaken. The question of easy transport of goods is a main factor in agricultural prosperity. We think a solution of that problem can be found in motor transport, and for motor transport good roads are essential. We therefore think that road making should now be the main activity of the Public Works Department for some time to come.

(iv) Up to this time the general body of agriculturists has not been able to make any use of the Meteorological Department, both because the information supplied by the department is very general on one hand, and on the other hand agriculturists are not able to assimilate the information made available. In fact, we fail to see from our present experience how the activities of the Meteorological Department may be profitably utilised by agriculturists.

(v) and (vi) The activity of these services has given much convenience to the agricultural population, but there is much scope for their extension; but these services must be cheapened so as to give full benefit to the agriculturists. The extension of these services will have great influence in bringing the middle class to take to agriculture and also in raising the agricultural class to a higher status.

At this point, we think we may make some suggestions about general administration, so far as agriculture is concerned. Agriculture, being the main industry, and, we may also say, the key industry of the nation, it should be given a position of the highest importance in the administration of the Province. In fact, we may go to the length of saying that one of the Ministers should be called and made a Minister for Agriculture.

Next, the Agricultural Department should be fully staffed with a view to extending its activities throughout the length and breadth of the Presidency. In fact, for some time the department will have to enter into every detail of the agriculturist's life and carry out the general programme which may be framed by the Commission for the uplift of the agriculturists of this Presidency. The Director should always be a highly qualified expert. This is so far as the bureaucratic side of the department is concerned; but at the same time we must state that the activities of the department should be controlled at each stage, and in each sphere, by small popular advisory committees who will regulate the activities of the department so as to serve popular needs. We refrain purposely from suggesting a cut-and-dried scheme for the formation of the department as well as the committees, because that is a task which is beyond the powers of any one individual or institution, and any such proposed schemes are bound to be raw proposals which may not stand the test of practical application; hence we have only indicated the lines on which development may be carried on.

QUESTION 5.—FINANCE.—*General.*—The indebtedness of the agriculturists, specially in the Deccan, is, in our opinion, due not so much to lack of financing means or credit but to the inherent, uneconomic nature of the dry agriculture which is always in a precarious condition owing to the well-known vagaries of the climatic conditions of the Presidency.

The second cause of the uneconomic nature of agriculture in the Presidency is to be found in the fact that dry agriculture provides employment to the agriculturists during a few months of the year only. So, until these two root causes of the evil of indebtedness are removed, no scheme of financing will be a success. With these reservations, therefore, we reply to the detailed questions under this heading.

(*a*) Co-operative credit was and is a useful method for the better financing of agricultural operations. If necessary, co-operative societies should be authorised to give long term loans, or a beginning with introducing land banks may be made.

(*b*) We do not feel there is any disinclination to take *tacavi*, but owing to the protracted procedure of obtaining *taccavi*, which leads both to delay and corruption, agriculturists do not take as much advantage of the system as is possible. Our suggestion in this respect is that as Government will be unwilling entirely to separate this activity from the jurisdiction of the Revenue Department we propose that an officer of the Revenue Department may be placed on special duty in each district to promote and administer the use of *taccavi*. He should, of course, work in consultation with the local revenue authority for ascertaining the interest of each holder in his land,, and the amount which may be safely advanced on the security of that interest. But, at the same time, the officer should, in consultation with the local agricultural authority, regulate the issue, and the use of the *taccavi* amount by the cultivator. Some members amongst us think that *taccavi* transactions may be carried out through well-managed societies.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—As we have mentioned above, this evil is due to causes which are inherent in our agricultural economy. With these observations we proceed to detailed answer:—

(*a*) (i) As mentioned above, dry agriculture which is the main agriculture of the Province being uneconomic, the agriculturist is always living from hand to mouth, and even the slightest variation in his routine of life compels him to borrow. The main causes of borrowing are, firstly, marriage ceremonies; secondly, obsequies. The third usual avenue by which the *sowcar* creeps into the affairs of the agriculturists is the account for daily household purchases on credit. The payment of assessment and purchase of seed are also occasionally responsible for incurring debts. Purchase of bullocks is also one of the causes of borrowing.

(ii) His source of credit is his land only, and up till recently his credit was the vilage *bania*.

(iii) The reasons, of course, are the unremunerative character of agriculture and also of the purposes for which debts are incurred.

(*b*) and (*c*) As the present agricultural indebtedness is due to causes which, in our opinion, are inherent in the conditions under which agriculture is carried on at present, we are emphatically of opinion that unless and until the root causes are removed and agriculture is put on a sound economic basis no improvement in this direction is possible Palliatives such as those mentioned in the Question will not mend matters.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) (*b*) and (*c*) We admit that in many parts excessive fragmentation has been a source of inefficient agriculture and we would recommend that this question should be tackled by legislation, the details of which will have to be determined by a mixed influential committee after careful consideration, because consolidation of holdings will involve delicate questions of property law; and also the process of consolidation will be a heavy shock to the sentiment of the agriculturist, who is greatly attached to his piece of land. Our ideas in this respect are that the minimum size of holding may be fixed separately for each district or any other unit of locality with similar agricultural conditions. Legislation for consolidation may be undertaken for those localities where it will be found that fragmentation has gone below the economic limit which may have been settled.

We think the present is an opportune time to tackle this question because the evil has taken acute form in a few districts only; and so, if the question is dealt with now and the minimum as suggested above is now fixed for all districts this evil will not arise in other districts; thus no question of consolidation will ever arise in those districts and the consequent dissatisfaction will be avoided.

QUESTION 8.—IRRIGATION.—(*a*) It is very difficult to answer this question in detail, so as to suggest particular schemes, because after all it would involve some engineering knowledge to find out whether the scheme suggested would be feasible or not. We would, therefore, reply to this question by stating that every effort should be made to utilise all sources of water by every practicable means for the service of agriculture.

In any case the increase of small *bunds* in river beds and rivulets may be encouraged. In fact, sustained efforts by means of standing committee in each district for this purpose may be made; we also wish to suggest that inquiry may be made into the feasibility of increasing the capacity of the existing canals so as to carry more water through them during the rainy season in order that water may be utilised at very cheap rates for giving one or two waterings to lands in the districts which have a precarious rainfall.

The configuration of Bombay Presidency on the eastern side of the Ghats is such that it is not very easy always to utilise the water of rivers

and rivulets by means of small bunds, temporary or permanent. In many places the rivers do not flow throughout the year. But as irrigation in one form or another is very necessary for good agriculture, we submit that in spite of the natural difficulties mentioned above, a heroic effort must be made to utilise every drop of water, above-ground or underground, for the purposes of agriculture.

(*b*) The cultivators are not at all satisfied with the existing system of distributing canal water. In the first place, they are too much at the mercy of the Canal Officer. The higher officers try to regulate the work of the distribution of water by means of numerous annoying regulations and these in turn give an opportunity to the petty officials to harass the cultivators at every turn. In fact, after much consideration we venture to suggest that there will not be peace for the irrigator until some method is found of giving water by measurement and we request the Commission to urge this point on the notice of the Government, so that a great source of dissatisfaction will disappear. We would further mention in this connection that the administration of canal water may be made a branch of the Agricultural Department.

QUESTION 9.—SOILS.—Under this heading we have to mention that experiments carried on in connection with the drainage of soils in the Nira Canal tracts have proved successful; and so, in future, any schemes of canal water should be accompanied by schemes of drainage. Another suggestion which we have to make is that as *bunding* of dry lands would have a marked effect on the outturn of the soil under the present conditions of climate, intensive propaganda by every possible means, including *taccavi* advances at cheap rates, may be undertaken by Government for the purpose of putting all dry lands under *bunds*. This will have a marked effect on the condition of agriculturists.

QUESTION 10.—FERTILISERS.—(*a*) Artificial manures cannot, of course, take the place of natural manures. They can only supplement the latter; and so, for that purpose, their use may be encouraged.

(*b*) Provision for speedy analysis of various samples submitted should be the main preventive against adulteration. Legislation may also be undertaken.

(*c*) Demonstrations on Government farms or on the farms of cultivators themselves can be the only method.

(*d*) Only in canal areas for sugar cane has ammonium sulphate been used by irrigators, and it has now firmly taken root in the canal areas.

(*e*) Experiments made so far with phosphates and potash in the Deccan have not been successful, but more investigation is necessary.

(*f*) The only method that we can suggest is increasing the supply of cheap fuel, both wood and charcoal. The Forest Deparement can do much in this respect by increasing the plantation of trees useful for the fuel of the poor people, and by providing facilities for easy distribution of the same. Of course, it may be suggested that if the loss caused by turning cowdung into fuel is brought home to the cultivator by means of intensive propaganda, some results may be achieved; but this would be a laborious process and again, unless some substitute is provided, this propaganda would not be of much use.

QUESTION 11.—CROPS.—(*a*) (i) and (ii) These items may be included in the scheme of research. In fact, it is one of the most urgent needs of the present day that the question of improving the present varieties of food grains, either by cross-fertilisation or such other methods known to science, must be undertaken. A search for varieties which may stand long breaks in the monsoon or can be grown on lighter soils may also be made. This has become necessary owing to the fact that non-food crops which are more profitable than food crops are being increasingly grown on good soils Of

course, we recognise that the Agricultural Department has made some progress in this direction but we wish to suggest that the activities of the department should be now concentrated on improving the indigenous food grains of the country.

(iii) *Distribution of seeds.*—Owing to various circumstances the agriculturist is unable to provide for seeds from the out-turns of his field and hence the question of seeds often becomes very difficult for him and sometimes it leads to borrowing. Until, therefore, seed agencies are established, the work of producing or collecting and distributing seed must be undertaken by Government farms.

(iv) *Prevention of damage by wild animals.*—*Shikar* parties only can be suggested as a method of prevention of damage by wild animals. This method has been successful in Nira tracts. Also, an increased number of licences for guns may be given. In this connection, however, we wish to make a suggestion which we hope will be duly considered. The present method is to give a licence to one individual to keep one or two guns. We suggest that instead of licensing a particular individual the weapon may be licensed. What we mean is that the present restriction that a gun under a licence is to be used by the licensee alone should be removed. A licensed gun may be allowed to be used by anybody, the actual licensee being held responsible for safe custody. This change would have, in our opinion, a far-reaching effect on the life of the people, without at the same time increasing the supposed danger of an increased number of firearms with the people. There will be more people in a village conversant with the use of firearms than at present; and the martial or sporting spirit of the people, which is dying out for the present, will be maintained.

Co-operative fencing may be tried in one or two villages near forest area and if found successful its use may be extended. This does not mean, however, that the use of *shikar* parties will be unnecessary even if co-operative fencing is adopted, because we think that the increase in the number of wild animals must be checked in their breeding places.

(*b*) We have no suggestion to make in this respect except perhaps the introduction of oats.

(*c*) The *kolumba* variety of rice introduced by Karjat farm, Pusa wheat No. 4 and H.M. 544 sugarcane.

QUESTION 14.—IMPLEMENTS.—(*a*) There is a good deal of scope for improvement in the existing agricultural implements and for the introduction of new ones. In fact, the introduction of labour-saving implements would go a long way to solve the problem of making agriculture economic. But, in this connection, we wish it to be noted that unless implements suitable to the agricultural conditions of the country are designed, there can be no solution to this problem. Mere introduction of the existing foreign machinery will be of no use; it will not be taken up by the agricultural population because it will not suit their conditions.

This problem requires investigation and study which may be undertaken in co-operation with firms who wish to co-operate. We might suggest that seed drills and small reaping machinery may be the first subjects of investigation.

(*b*) Demonstration of the complete usefulness of an implement is the only method which can hasten its adoption by the agriculturists. Of course, financial help in the way of instalment system, etc., will be necessary if more costly machinery is to be introduced.

QUESTION 15.—VETERINARY.—(*a*) There is no objection to transfer the department to the control of the Director of Agriculture as before. (*c*) (1) The remedy is to have itinerant Assistants attached to one or two central hospitals in each taluka, whose duty it should be to visit in turn the various villages in the taluka. In fact, each Assistant and his compounder should

be expected to visit one or two villages every day, either in the morning or evening, for about 20 days in a month. (2) We are not aware of any touring dispensaries. (*d*) Unless the farmers are made fully aware of the nature and the effects of contagious diseases, legislation on the point suggested will not be of much use. So, before legislation, we would advocate propaganda work with the object of impressing the nature of the disease and its remedy upon the agriculturist by means of lectures, cinemas, and such other methods as may be thought suitable. Legislation should follow this preparation. (*f*) When the propaganda mentioned in the reply to (*d*) has taken effect, then methods of modern science will be resorted to more and more by the people. (*g*) Yes.

We think all research must be carried on in the Province itself. In fact, our idea is that each Province should be autonomous, so far as possible, regarding all ordinary agricultural necessities.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) (i) Improving the breeds of live stock has become a necessity, and this work should be carried on through the Veterinary Department. But special attention must be paid to the needs or requirements of various localities in selecting or improving a breed for that locality.

(ii) The dairying problem cannot be solved unless the breed of milch animal is improved.

(iii) A systematic attempt at raising different kinds of breeds should certainly be substituted for the present haphazard method by which the agriculturist obtains his supply of cattle.

The first suggestion we wish to make in this connection is that a drastic rule be made that all bullocks should be castrated before a certain age so as to avoid the possibility of promiscuous breeding. This will also result in the reduction of the number of useless cattle which the agriculturists support out of mere sentiment. In fact, all breeding should be controlled by the Veterinary Department. Of course, this will entail a corresponding responsibility on the Veterinary Department to provide easy facilities for covering cows with suitable bulls.

(*b*) (i) (ii) (iii) (iv) All these evils do exist. In fact, not many common pastures are left nowadays. As regards grass borders, they are also disappearing gradually in these days of stringency of food. However, as we have elsewhere advocated an intensive propaganda for turning all land into *bunded* parcels, the *bunds* will naturally provide more grass borders and so may be an advantage from the point of view of maintaining cattle also.

Owing to deficient rain-fall, shortage of straw of cereals and leaves of pulses is nowadays keenly felt. Improved methods of dry farming may possibly result in increasing the supply of grain and straw also. But the deficiency in straw must be made up by the supply of grass from the forest. Whether all the grass from the forest can be collected at a reasonable expense may be a question; but the Government must apply itself to make provision for the collection and distribution of grass to supplement the shortage of straw fodder as far as possible.

As regards green fodder during the dry season, although we have no definite ideas for remedying this evil we would ask the Agricultural Department to carry out an investigation and inquiry into the possibility of the leaves of some trees being utilised for this purpose.

(*c*) In the Poona district the fodder scarcity begins to be felt from the month of May and continues till the end of July or August according to the date of commencement of the rains. About a month elapses before cattle begin to thrive, or more if they become very emaciated during the shortage period.

(*d*) In the Poona district there are some pastures which are either reserved for the Military or the Forest Department. They may be thrown open

to the public, leaving the Military to buy their grass in the market, or at most allowing them a preferential right to demand a sufficient amount of grass from the purchasers of the pasture.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—(*a*) In the dry tracts, if an agriculturist with a holding of 20 acres has no means of irrigation such as a well or *pat bandhara*, then he has sufficient work only for about six months a year; and even during those six months he is not continuously engaged in the farm-work. If the actual days in work in the field be calculated, they would not probably exceed four months. The following is a rough programme of the agriculturist's season in the dry tract, with an average holding of 20 acres. We begin his programme from the beginning of the monsoon.

Details of work during the cultivation season in the dry tract.

	Days of actual work.	Days of interval.	Remarks.
1. One harrowing after the first rains	6	—	—
2. Sowing	5	—	—
3. Interval	—	30	—
4. Hoeing	6	—	—
5. Interval	—	40	—
6. Watching	50	—	—
7. Reaping	10	—	—
8. Threshing	10	—	—
9. Ploughing for the next season. Generally the whole land is ploughed once in every four years, so he ploughs one quarter of the area every year.	15	—	One acre is ploughed in 3 days.
10. Interval	—	90	End of Agrl. season.
11. First harrowing	8	—	—
12. Interval	—	30	—
13. Second harrowing	5	—	—
14. Interval till next rains	—	60	—
Total	115	250	—
Add for sundry work... ...	5	5 deduct	—
	120	245 = 365	—

From this statement, it will be seen that in those tracts in which there is only one crop, *rabi*, the agriculturist is actually engaged on his farm for about six months, out of which the actual days of work come to about 120. After the season is over he has about six months' leisure. Of course, during this period he has to give one or two harrowings to his land, which operations are generally carried out by grown-up boys who are not regularly engaged in agricultural labour, or by old people.

In this slack season the agriculturist goes to some industrial centre which is generally Bombay, or he is engaged in transport work at some place near his village.

The programme for the *maval* tracts and for tracts which can, owing to seasonal conditions, grow two crops, extends for about nine months in a year. In the *maval* tracts the working season begins from the beginning

of May and continues till the end of January, and in dry tracts with the two crops, the season lasts from June to end of February. During the three months of the slack season these people generally do some transport work.

Before answering further questions under this heading, a few general observations are necessary.

As the agricultural population is very large and as the slack season is very long, the question of their full employment cannot, we think, be solved by recommending the introduction of small industries allied to agriculture.

In the first place, it would be difficult to find suitable markets for consumption of the products of these subsidiary industries which may be introduced. In the second place, these by-industries cannot be worked properly by individual agricultural families unless there is special organisation for the collection and disposal of their products. In fact, such attempts have been made before and failed.

In the third place, for turning out good finished products in allied industries, some technical knowledge or practice is necessary which is entirely lacking at present. This consideration will be clearly an important consideration when we consider that the products of by-industries of agriculturists will have to compete with products of regular industries of the same nature. So, if we consider the question as a whole, we think that unless some radical means are adopted for giving employment to the agriculturists during the slack season, the problem will not be solved.

Our ideas in this respect are that small industries should be encouraged and they should be linked up with the agricultural system of the country; and from this point of view we heartily endorse the suggestions made in sections (*d*), (*e*) and (*f*) under this heading. Of course, it would be difficult to suggest definite methods by which this end can be achieved, but in order that this aim may ultimately be achieved it will be necessary, in the first place, to give the agriculturist a little technical education; and, from that point of view, we have already suggested the overhauling of the education system. In the next place, if facilities for transport and communication by means of good roads and numerous posts and telegraph offices are provided, then it will be easy to induce capitalists to start small industries in rural areas. In fact, Government should encourage every such attempt by all means available. So, the conclusion we come to is that the agricultural system of the country must be linked up with an industrial system in the country; and the industries of the country cannot be encouraged unless a general technical education is given to the masses and facilities are provided for giving higher industrial and commercial education also. So this question of the uplift of the agricultural population cannot be solved by mere spasmodic efforts at introducing a few by-industries.

(*h*) The agriculturist, in his present economic position, is unable to undertake any improvement either in his land or his environment. The general level of his knowledge also is low. So, as soon as his economics are improved and his status is raised, then he will naturally be induced to improve the health conditions of his environment by suitable propaganda.

QUESTION 18.—AGRICULTURAL LABOUR.—(*a*) (i) and (*b*).—The question is rather vague because the conditions are different in dry and irrigated tracts. In dry tracts the scarcity of labour is felt only for a short period extending to a month during the reaping season, and it will be a very difficult problem to attract good agricultural labour to the dry tracts during the reaping season only. The only solution can be found in the introduction of small reaping machinery suitable for bullock-power. As regards irrigated tracts, at least in this district, the question of labour is not very acute because irrigation agriculture supplies work throughout the year.

(ii) We are not aware of any lands in the districts of Poona and Ahmednagar which are uncultivated for want of labour.

QUESTION 19.—FORESTS.—We cannot give detailed replies to the points under this head, but we think it our duty to mention the feeling amongst the ryots that the interests of the agriculturists are not properly co-ordinated with the interests of the forests. For the first 10 years in the life of a coupe, grass should be allowed to be cut only by villagers round about. After the first 10 years unrestricted grazing may be allowed.

Another recommendation we wish to make is that besides timber, more extensive cultivation of shrubs or small trees which may be found to be useful for cheap fuel either as wood or charcoal may be undertaken.

One more thing which we wish to bring to the notice of the Commission is that, in many places, in dry tracts cultivable land or land near rivers has been occupied by forests because originally these lands may have been fallow. But now that cultivation has increased, it is felt that lands which are cultivable should not be kept under forest. They may be sold to the cultivators of the village by public auction and other lands which may be waste land or which may have become useless lands may be taken up for the growth of forests.

QUESTION 20.—MARKETING.—(*a*) and (*b*).—The present market facilities, though not quite satisfactory, are adequate for the present needs. In fact, the *bania* does provide marketing facilities for the produce of agriculturists whenever and wherever necessary. Of course his management may not be very fair or very much developed. But it must be admitted that with his business instincts he serves the marketing needs of the agriculturists. The markets in big cities are of course better managed, though not very satisfactorily.

We are acquainted with the *gur* (jaggery), grain and vegetable markets at Poona. In the *gur* market there are no facilities for grading or stocking. The jaggery is brought from the villages in carts to the shops of commission agents in Poona for sale. The shopkeeper generally acts as a commission agent for the producer and sometimes for the consumer too. The jaggery is purchased in large quantities by merchants for export to different places in India. The merchants stock the jaggery and sell it as required later on. We suppose that there is a third intermediary in the places where the goods are actualy sold to the customer by the retail dealer. These wholesale merchants purchase large quantities from the merchants who have stocked the goods at Poona according to the needs of actual consumption in their locality. The local commission agents also sometimes purchase and stock the goods on their own account, so there are no facilities for stocking the goods on behalf of the farmer, nor does he desire to stock them as, in the generality of cases, he has no staying power and in these few cases where the farmer can afford it, stocking cannot be resorted to by him because there are no proper stocking facilities provided in the market. The merchants and commission agents who purchase and stock the goods do it in hired buildings which are entirely unsuited for stocking, thus causing a good deal of waste; but as they carry on business on a large scale and they have got staying power, they generally are able to make up the loss by increasing the rates. This is so far as stocking facilities of the market are concerned. As for weighing, the method is to weigh out two blocks each time. This method is both laborious and dilatory and it puts the farmer at the mercy of the actual weigher. The custom of the market is to allow a margin of a few seers for each weighment of the blocks up to a particular weight, so if the weight of these two blocks exceeds the particular limit by even one seer the margin is increased.

The services of the commision agent who is also, in the generality of cases, the financier of the farmer are tolerably good. He, in fact, always finds customers somehow or other for the goods of his client. The commission agent charges eight to 12 annas per *palla* and 9 per cent. for discount because he has to give credit to the purchaser for nine days; so his charges

come to 5 per cent. The purchaser, that is to say, the merchant, stocks the goods and the wholesale dealer in the locality where goods are actually consumed deals according to prevailing market rates.

The above remarks mainly refer to the jaggery market in Poona. With slight variation they will also apply to Kopergaon, Belapur and Baramati, which are the market places for the produce of the Godavari, Pravara and Nira Canal tracts respectively.

Very recently the system of co-operative sales through co-operative societies has been introduced at each of the market places mentioned above. They are well patronised and are minimising the evils of under-hand or reckless dealings by commission agents. But their scope will be limited so long as many of the farmers have to depend for finance on local commission agents.

The above remarks apply to the big jaggery markets in the Deccan.

As regards grain markets they are distributed all over the districts, and, in fact, almost each taluka has one or two market places for grain. As regards *mofussil* grain markets, there also the operation is carried on in the same way as the sale of jaggery except that the grain is sold by measurement, and the rate of commission may vary. As regards stocking and grading facilities and the efficiency of the commission agent the same remarks as above would apply. Of course, the supply of foodstuffs being not in excess of demand, there are no difficulties in marketing the produce. Lastly, if the term " Market facilities " is to include good road communication, then certainly that is lacking in the case of the *mofussil* markets.

Vegetable Markets.—As regards the vegetable market in Poona, we think it is possibly the only market in the Deccan which can be called a regular market; but here the conditions of the market are very unsatisfactory. In the first place, the arrangements for exporting the goods for sale are very insanitary; the goods being perishable the farmers are at the mercy of the commission agent, and consequently the rate of commission and some other exactions may be felt to be excessive; but in spite of this, the service is useful and efficacious. In fact, the commission agents somehow or other find customers for their goods.

Potato Market.—There is a large market for potatoes in Poona. It is also conducted by commission agents who supply goods to outsiders according to their orders. The surplus is purchased by an association formed by the commission agents themselves. Here also there are no facilities for stocking or grading.

(*c*) The Indian consumer is not very particular about the quality, grading or packing of agricultural produce, and hence no improvement can be expected from or forced upon the cultivators so long as there is no inland demand for it. But the importance of these qualifications should be brought home to him for goods destined for export purposes. For some time these operations would have to be done by the department under the auspices of co-operative sale societies wherever they may exist or for individual farmers until the generality of the farmers realise their importance.

(*d*) A beginning regarding the things mentioned in (*d*) may be made, although we do not expect much benefit for the present from these facilities to the generality of the mass of cultivators who are too ignorant to take advantage of these facilities.

Under the heading " Marketing," we wish to make a suggestion that weights throughout India should be standardised and gradual compulsion should be resorted to for introducing, wherever possible, a system of sale by weight.

QUESTION 21.—TARIFFS AND SEA-FREIGHTS.—Under this heading we have one suggestion to offer, viz., that as the motor lorry is now likely to solve the problem of *mofussil* transport we suggest that the import duty on motor

lorries and cheap cars should be entirely removed. We however think that a reasonable annual tax may be levied on each motor car and the income from that source may be earmarked for road improvement; also if such a tax is imposed, then motors and lorries may be exempted from toll.

QUESTION 22.—CO-OPERATION.—(*a*) and (*b*).—As the generality of the co-operative credit societies in this Presidency are credit societies and only a very few societies are for other purposes, we wish to offer only a few general observations on the scope of societies in rural economy.

We think that the growth of the co-operative movement in the Presidency has been encouraged so far by all possible means; but as we think that the growth is not very healthy and that many of the societies are not doing well, we feel that the time has come to take stock of what has been done so far and to consolidate the existing societies on the lines which may be suggested after detailed examination of the whole situation. But one suggestion we would like to make and it is this, that any further growth in rural societies should be carried on under the direct control of a joint Board consisting of the Director of Agriculture, the Registrar of Societies and a few non-official gentlemen who may have special experience in the matter.

We feel that the control of the societies merely by the Registrar has led to the contingency that the number of societies has increased, which means that the sources of credit of the agricultural population has increased; but the other factor necessary for the success of a society, viz., the opportunity and ability to use the increased credit in a profitable way, has been overlooked so far, and hence we suggest that further progress ought to be carried on under the joint auspices of the Agricultural as well as the Co-operative Departments, so it may be ensured that the capital provided will be used in profitable agricultural operations. In fact, we emphatically feel that until agriculture is made economically paying, there will be no further scope for co-operative societies amongst the rural population.

(*d*) The principals of compulsion may not be quite unacceptable, but (1) the percentage of minority which can be compelled, (2) the methods of compulsion, (3) the facilities for providing compensation to those who may not want to take part in the common work but who may be willing to transfer their interest to the community, will all be very complicated and delicate questions, and hence compulsion should be introduced only with great circumspection.

QUESTION 23.—GENERAL EDUCATION.—We have discussed this subject under the heading of agricultural education, and so we may state here shortly our conclusions:—

(*a*) The present educational system is designed mainly for literary courses and so it has the effect of destroying the interest of the boy either in agriculculture or in industry. Our suggestion for remedying the evil is that the whole educational system must be overhauled, that agricultural and technical knowledge must be incorporated from the beginning in the general education of the country, and the courses should be so arranged as to effect a gradual bifurcation of the early general course into three main branches, viz., agricultural, literary and technical, so that boys with leanings for any of these may gradually pass through that course. We do not approve of the idea of separate schools for agriculturists, because many of us feel that the general educational level and consequent culture of their boys should not be lower or even different from that of the boys or other classes. The same general education would result in a uniformity in culture and also in training the boys of agriculturists to utilise their spare time either in small industries or in cottage industries. Of course, below this general uniformity, we admit that some difference will have to be made between primary schools in rural areas and primary schools in urban areas; and

that distinction should only consist in a more and less pronounced bias towards either agriculture or technical instruction, that is to say, the rural school may have a little more bias towards agriculture and less towards technical instruction; while it should be *vice versa* in the urban primary school.

As regards the middle school, as we cannot have two sorts of middle schools, the difficulty will have to be met by making provision for instruction in all these three courses, viz., agricultural, literary and technical, the boy being allowed freedom to take up either literary and agricultural, or literary and technical, courses. In the high school course the same bifurcation may proceed so that there the boy may either take a half literary and full agricultural course or a half literary and a full technical course, or a full literary course, according to his leaning.

In the collegiate course there should of course be complete bifurcation. This scheme may look very ambitious and may even present difficulties in bringing it into operation. But if we have to satisfy the aspirations of the agriculturists to take their place as citizens of the State on an equal footing with other citizens and at the same time induce them to follow and develop agriculture on profitable lines, it will be necessary to introduce some such system of comprehensive education.

QUESTION 24.—ATTRACTING CAPITAL.—(*a*) If this question means that agriculture should be carried on by big capitalists employing labour, then we are certainly against that suggestion. We do not want the agriculture of the country to be industrialised. We want the farmers who really are the backbone of the country to remain, and the agricultural character of the country to be retained. Of course by this we do not mean to say anything regarding the controversy whether the system of peasant proprietors is more advantageous than that of big land holders under whom tenants will cultivate the land. Possibly both are essential and their existence may be left to the operation of natural causes. But in no case should an attempt be made for the purpose of bringing large cultivation under the control of persons who would merely look at the concern from a business point of view and not as their permanent occupation. If, however, the question is only intended to elicit replies as to how the capital of the country may be made available for the use of the agriculturist, then we suggest that co-operative credit is one of the best means. Of course co-operation has not been very successful in this part of the Presidency for the present and we have discussed its reasons under the heading of Co-operation, but we may mention that operations of the co-operative societies have proved one fact, that they are able to attract the capital of the country for their use. So, what is really needed to attract capital is to make agriculture economically paying and this aspect we have discussed in our replies to other questions.

(*b*) The real reasons which discourage agricultural improvements are:—

(i) Owing to his backward condition the agriculturist is unable to grasp or to calculate that a particular improvement will yield him a particular return, as agricultural improvements are not expected to give immediate or perceptible results.

(ii) Even supposing that he can calculate, still, from the general conditions of agriculture, in his experience there is always an uncertainty in his mind whether any improvements will actually yield profits; and hence

(iii) as he has no spare capital for anything but his routine operations he is naturally very unwilling to borrow money for the purpose of improvement.

(iv) Of course the general ignorance and apathy created by the uneconomic condition of business of the agriculturist is mainly responsible for the lack of initiative for making small improvements which may require only labour.

(v) Lastly, some of us think that the legal nature of the occupancy may also have some deterrent effect against improvements.

(*b*) (i) The system of education which we have suggested above will be a complete remedy for the state of things mentioned in this heading. In fact, this fear that the sons of agriculturists when educated will be weaned from agriculture can be true only during a short period because, after some time, it will not be easy for the educated sons of agriculturists to get sedentary employment elsewhere and so they will most probably stick to their hereditary occupations.

(iii) The reason generally is the poverty of the parents and their inability to realise the benefits of further education.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(*a*) There ought to be a general physical reconstruction of many of the villages from the standpoint of hygiene. In some cases it may be found necessary to change the sites of villages. In undertaking such reconstruction, however, one fact must not be lost sight of, viz., ample space ought to be awarded to each householder for proper living according to Indian conditions and methods. And a good supply of drinking water should be provided. Beyond this of course further progress cannot be made by artificial means unless we improve the economic condition of agriculture and the agriculturist, for which we have discussed means throughout this memorandum. No propaganda for raising the standard of living will be successful without agricultural prosperity.

(*b*) Yes, but such inquiries ought to be conducted by mixed agencies consisting of officials and non-officials. As a good example of such enquiry, Dr. Mann's investigations may be accepted and taken as a guide.

QUESTION 26.—STATISTICS.—(*a*) (i) (ii) There is a general complaint that the present methods in this connection are not very satisfactory. So, one suggestion which we wish to make is that the estimates of the yield, at least, should be arrived at by the Revenue Department in consultation with the Agricultural Department.

As for estimating the area under each crop, we think that little can be done unless the holdings are standardised.

In conclusion, we beg to sum up the most salient points which in our humble opinion demand urgent consideration at the hands of the Commission.

1. The agriculturist in the Deccan, by which we mean the farmer in the dry tracts and the small farmer in almost all tracts, is financially so much depressed owing to various causes that the task of uplifting him and reinstating agriculture in its previous premier position has become so vast and so complex that nothing short of heroic efforts to improve the situation in every possible way will accomplish the task; if the Commission agrees with this view of ours, then we trust it will not be deterred from suggesting such remedies as are considered necessary even though they may be drastic and expensive.

2. The remedies that may be suggested should touch the root causes of the depression of agriculture, namely, the backward condition of the ryot and the uneconomic nature of agriculture as carried on under present conditions. The remedies suggested by us may or may not be accepted by the Commission, but whatever other remedies are suggested should be thorough and not merely spasmodic efforts for improvements in particular items here and there.

3. Whatever programme may be recommended for accomplishing the work of the uplift of agriculture, one thing must not be lost sight of, viz., that agriculture should not be industrialised. Rural life as such, must remain in its various aspects as a striking feature of the country-side.

4. We are aware that there may be a great divergence of views with regard to the methods of providing subsidiary occupations to the agriculturist to engage him in his spare time; but we think out of the suggestions made by us there can be no difference of opinion regarding the following three remedies:—

(i) A general advance in education.

(ii) Ample development of road and postal communications, and

(iii) Initiation of all possible methods of utilising the water supply of the country; and hence, at least these three remedies may be strongly recommended for the present.

5. For some time to come, all improvements will have to be foisted on the agriculturist, until he begins to realise the importance and "he begins to ask for more"; and hence any recommendations of remedies must be accompanied by a complete statement of the agency which will work out the programme faithfully in a missionary spirit; therefore, we suggest that the present Agricultural Department may be taken as the basis of the agency, but it should be adequately expanded to undertake the new duties. Further, with a view that the department may not fall into the red tapeism of the ordinary Government branches of the Administration and that it should maintain its missionary spirit, we recommend that no one should be considered eligible for the position of the head of the Department unless he possesses high expert knowldge of the whole subject and also is known to possess the necessary missionary spirit. As a further safeguard for preventing the department from falling into mere official routine lines, we have recommended that there should be advisory committees attached to the branches of the department. The existence of such committees will at least keep the farmers and the department in touch with each other.

Oral Evidence.

51,188. *The Chairman*: Mr. Bhagwat, you are here on behalf of the Irrigators Central Committee, Deccan Canals?—Yes.

51,189. Would you tell the Commission what the constitution and objects of that body may be?—It is to ventilate the grievances of the irrigators on the Deccan canals and to look to the general uplift of the irrigators.

51,190. Who form the members?—The Nira Canal Irrigators' Association, the Godavari Canal Irrigators' Association, the Pravara Bagaitdar Sangh, the Mutha Canal Irrigators' Association, and the Pandhara Bagyatdar Sangh.

51,191. Mostly cultivators?—Yes.

51,192. Is membership confined to cultivators irrigating land from the Deccan canals?—Yes.

51,193. Does it include cultivators cultivating land irrigated by wells?—Yes.

51,194. Sugarcane is one of the important crops grown by your members?—Yes.

51,195. Is it the most important?—Yes.

51,196. You yourself are growing it?—Yes.

51,197. What class of sugarcane is being grown by most of your members?—The *Pundia* variety.

51,198. Any Coimbatore canes?—Recently H.M. 544 has been introduced.

51,199. Is that doing well?—Yes.

51,200. Do you think that there is any scope for extending the number of crops grown on irrigated land?—Certainly.

51,201. Have you any suggestions to make?—I think cotton is being grown now in large areas in the Nira tract, and it has been very successful.

51,202. Are any food crops being grown?—The food crop area is being increased, because sugarcane is not profitable.

51,203. Cotton prices also have been low?—Yes.

51,204. What food crops are usually grown on irrigated lands by your members?—Almost all the food crops, *bajri*, *juar* and rice.

51,205. Has there been any attempt by the Agricultural Department to evolve improved varieties of *bajri* and *juar*?—Yes.

51,206. Is that a direction in which research might be developed?—Yes.

51,207. Do you find that there is a greater demand for agricultural and other education in the irrigated areas than in the dry areas?—Yes.

51,208. How do you account for that?—Because the general level of the cultivator in the irrigated tracts is better than in the dry tracts.

51,209. The general prosperity is higher?—Yes.

51,210. *Sir Henry Lawrence*: Is the irrigating cultivator more intelligent than the non-irrigating cultivator?—Certainly, because prosperity develops intelligence.

51,211. *The Chairman*: You think that the proportion of literate persons is increasing in these districts that you are familiar with?—Yes.

51,212. On page 432, talking about agricultural industries, you say: "Its solution, in our opinion, does not lie merely in finding out a few secondary occupations for the agriculturist but in co-ordinating the agricultural industry with other small industrial activities, which can be profitably worked in rural areas by agriculturists without losing their interest in the main occupation of agriculture." Have you any practical suggestions to make in that direction?—No.

51,213. In your view, is it possible to combine the growing of fruit in a small way with ordinary cultivation on a small holding?—Provided there are irrigation facilities.

51,214. A few orange trees could be looked after by a cultivator?—Yes.

51,215. Could a small quantity of that sort be profitably marketed?—Certainly.

51,216. At the bottom of page 432, you are talking about the irrigated tracts, and you say: "and therefore increasing the irrigation facilities as well as making them easily and conveniently available to the people will be one of the important solutions of the problem of agricultural welfare." What do you mean exactly by "making them easily and conveniently available"?—If there is an agency like the Irrigation Department, there should not be too many rules which are annoying to the irrigators.

51,217. Have you any particular rules in mind about which you wish to complain?—I have got several.

51,218. Would you tell us what they are?—The Irrigation Department is much more particular about the exact date on which water is to be stopped. We are given water for the *rabi* crop from 15th October to 14th February. Sometimes our *juar* crop requires one or two extra waterings, and that also is withheld, although there is a rule in the Irrigation Department that one or two extra waterings should be given to a crop, or that a crop should be given water until it becomes mature. That is the rule, but the Irrigation Department fixes a date and it goes by the exact date.

51,219. You think they ought to be less exact?—Yes.

51,220. Have you ever viewed this problem from the point of view of the officer who is in charge of the head works of a great scheme of irrigation? He must know how much water is going to be used, and when it is going to be used?—Yes.

51,221. They cannot afford to have either empty channels at times when irrigation ought to be going on, or full channels at the time when irrigation is supposed to be stopped?—No.

51,222. It presents difficulties from the irrigation officer's point of view?—Yes. But only one or two extra waterings are required

51,223. Will you turn to page 432 of your note where you deal with Research. Where there are research centres such as in the Poona district, do you find that cultivators refer their problems to them?—I think tthey do.

51,224. On page 433, in answer to our question on agricultural education you suggest short study courses at the college and at various Government farms. Will you tell the Commission whether in your experience these short study courses have been a success?—Yes, there are some short study courses at the Manjri Experimental Station where they are shown practical improved methods in sugarcane farming, and several practical cultivators take advantage of that.

51,225. In your view, are these courses justifying themselves?—Yes.

51,226. Do you personally know any one who has been through one of these courses?—I have myself trained two or three people on my own farm and sent them out to the Central Provinces and other places. They have been very successful.

51,227. In order to farm or to obtain Government posts?—To farm, not to get Government posts.

51,228. On page 433, you say that many cultivators "have expressed a strong opinion that there is no reason why their sons should not be given general education up to the matriculation standard along with such agricultural education as will prepare the boys either to prosecute, with profit. further studies in agriculture or to take up practical agriculture with a readiness to assimilate new methods and new ideas in agriculture." That no doubt is the theory, but is it your experience that in practice, education up to that point fits a boy to return to his land and to engage in cultivation, or do you think it disturbs him and turns his mind to town life?—I think, when there are very few posts available to the agriculturists' sons, in a short time they will have to return to their old profession.

15,229. Is it your view that education up to that point turns a boy's mind towards the town for a livelihood?—It is.

51,230. Do you think that a man who is educated takes readily to the life of a cultivator in the ordinary village in your district?—At least in the irrigated tract, I find it to be so.

51,231. Your answer suggests that you differentiate between the irrigated tract and the dry tract?—Yes.

51,232. You do not think it applies to dry tracts?—No, because there agriculture is uneconomic; at present it does not pay.

51,233. Life is too hard a struggle in dry tracts?—Yes.

51,234. In answer to Question 3 on page 435, you say: "the use of copper sulphate as a preventive of smut is an instance where propaganda has failed to introduce this improvement." Has this practice not been adopted?—No, it has not been adopted.

51,235. Have you ever tried it?—Yes.

51,236. Is it effective?—Of course it does prevent smut in *juar*, but it has not appealed to the peopk

51,237. Why not?—Because, I think, the percentage of smut is very small.

51,238. You mean that there is no smut worth bothering about?—Yes.

51,239. Your district is particularly blessed in that respect?—I think so.

51,240. You do not blame cultivators for not employing the method of controlling smut if there is no smut to control? Is smut not a problem in your district?—It is, but not such a big problem as it is made out to be.

51,241. Will you turn to page 438 of your note? There, in answer to our Question 8, on irrigation, you suggest that payment for canal water by measurement is the ideal. You realise the practical difficulties in the way of the adoption of that plan?—Yes, I do realise them.

51,242. Do you think that public opinion amongst cultivators has reached a point where a collective arrangement embracing a group of cultivators might be made and adhered to?—Yes.

51,243. Have you ever attempted to get a group together?—No. We had arranged to manage the distributary where my own land is situated, but as it is at the tail end of the system, the Executive Engineer refused permission because of the difficulties of arranging irrigation at the tail. I think there is another difficulty also. Where a group of cultivators are allowed to distribute their own water, the Irrigation Department is very strict as far as the wastage of water is concerned, and though there are places which they do not visit for months together, they try to visit that distributary at every turn, to see whether the water is wasted or not.

51,244. You mean in places where the experiment of payment by volume is being tried?—Yes.

51,245. What is your suggestion?—There must be more sympathy on the part of the Irrigation Department, they must see that the system does not fail.

51,246. On page 442, in answer to our Question 17, you say: "as the agricultural population is very large and as the slack season is very long, the question of their full employment cannot, we think, be solved by recommending the introduction of small industries allied to agriculture." Why do you think that the long periods of idle time are an added difficulty in the path of introducing small industries?—For reasons given by me in the next paragraph, namely, the difficulty of finding suitable markets for the products of these subsidiary industries. In the second place, these by-industries cannot be worked properly by individual agricultural families unless there is special organisation for the collection and disposal of their products. In the third place, some technical knowledge or practice is necessary to turn out good finished products in allied industries.

51,247. These, no doubt, are very real problems which have to be faced, but I do not see why the length of the slack season and the fact that a great deal of time hangs on the cultivator's hands should be an added difficulty. I should have thought that, up to a point, the more time the cultivator had to devote to subsidiary industries, the more easily this particular problem would have been solved?—Because the organised industries have flooded the market so much that these subsidiary industries have no chance before them. For example, the toy industry will not have any market for the present.

51,248. Do you think that it would be easier to overcome those difficulties if the spare time at the disposal of the cultivator was less than it is now?—Yes.

51,249. What I am suggesting is that the difficulties of organising spare, or part time, industries are rather less in the case of the cultivator who has a great deal of spare time than they are in the case of a cultivator

who can spare little time to give to such industries, because, obviously, the more time you have and so the more regular the output the more easy it is to organise sales on a business-like basis?—We have to compete with foreign products. That is the great question.

51,250. Will you turn to page 443? In answer to Question 20 on marketing you give some views. You there point out some of the difficulties which the cultivators labour under and you say: "the local commission agents also sometimes purchase and stock the goods on their own account, so there are no facilities for stocking the goods on behalf of the farmer, nor does he desire to stock them as, in the generality of cases, he has no staying power and in these few cases where the farmer can afford it, stocking cannot be resorted to by him because there are no proper stocking facilities provided in the market." That, no doubt, is a disadvantage, but the co-operative sale societies meet that need to some extent?—I do not think so.

51,251. Have you had experience of co-operative sale societies?—No. They carry on business just like other shopkeepers, as far as I know the *gur* sale societies. There is one such in Poona.

51,252. On page 444, you say something about the methods of selling potatoes in the Poona market. Could you describe that system in a little more detail?—Potatoes are brought in cartloads by the cultivator to Poona and sold through a middleman. There are three or four merchants there who send them on to Bombay, and they are generally bought by those merchants, who combine together sometimes and give a very low rate to the farmer.

51,253. How do you know of the existence of this pool or ring?—That is my experience.

51,254. Do you mean that you have been a seller of potatoes yourself?—Yes, of potatoes, onions, &c.

51,255. How did you discover the existence of this ring?—Whenever I sold my potatoes I found that there were only three or four merchants coming to buy.

51,256. Various other people were not present in the market, except these three or four merchants who always came together?—Yes; these men generally buy for other merchants in Ahmedabad, Gujerat, Khandesh, &c.

51,257. Have you ever railed potatoes to Bombay yourself?—No.

51,258. Would it pay you?—I cannot say; if the rates are good then it would, perhaps.

51,259. Where do you get your potato seed from?—Generally from Khed, we also get fresh seed from Italy, after two years.

51,260. You use your own seed for one year?—Yes.

51,261. How do you keep them in the hot weather?—We keep them in good huts.

51,262. Just in one layer, or one over the other?—One over the other.

51,263. Have you ever tried storing below ground?—No.

51,264. I see that your society is not altogether happy about the state of health of the co-operative movement in the Province. You say on page 445, in answer to our Question 22: "We think that the growth of the co-operative movement in the Presidency has been encouraged so far by all possible means, but as we think that the growth is not very healthy and that many of the societies are not doing well, we feel that the time has come to take stock of what has been done so far and to consolidate the existing societies on the lines which may be suggested after detailed examination of the whole situation." Do you think there is an important percentage of societies that are unsound?—Yes.

51,265. Have you personal experience of many co-operative societies?—No.

51,265A. What leads your society to take this view?—We have got members who are conducting societies themselves, and that is our experience.

51,266. Have you, on your society, many who oppose the co-operative movement?—No; there are very influential people.

51,267. Do these members of your society who do complain about the condition of the co-operative movement speak with reference to their own societies or with reference to societies managed by other persons?—They speak of their own societies as also other societies.

51,268. What do you gather is, in the main, amiss with these societies?—I think it is the general level of the cultivator that has got to be raised.

51,269. What has that got to do with the life of the society?—Because they do not understand many of the things that are necessary for the proper management of a society.

51,270. You mean that the members do not understand the principles of co-operation?—Yes.

51,271. Is it your suggestion that the societies are financially unsound?—Not financially unsound; the finances are there.

51,272. Are you familiar with the business of any particular society?—No.

51,273. This note, I suppose, was prepared by your committee which contained persons who were familiar with the matter?—Yes.

51,274. *Dr. Hyder*: When these cultivators have no work on their farms for a period ranging from four to eight months, what do they do? Have they any subsidiary occupations at present?—No; they leave their farms and go to big centres such as Bombay and Poona.

51,275. And work in the mills?—Yes; or if they have their own bullocks and carts they carry on by driving carts of *chunam* or stones on hire.

51,276. On page 434 you say that the educational system of the Presidency should be uniform; that it should incorporate, in the first stages, agricultural as well as technical education along with literary education. What do you mean by the expression "in the first stages"? Is it the primary and secondary stage?—After the primary stage, I meant.

51,277. Then, on the same page, your reference is, I suppose, to the stage after the primary. You say: "after a particular period the system should begin to bifurcate into three branches"; that is to say, after the primary some boys should go into schools which give special agricultural education, some boys should take to technical education and some to literary education?—Yes.

51,278. You would like to see this duty on the import of motor cars altogether abolished?—Yes.

51,279. Do you think it would be a good thing for the agriculturists?—Yes, provided the roads are made good also.

51,280. As regards guns for the protection of crops, do you not think that it would be better to make the village headman responsible, instead of licensing the guns as is suggested by you?—But then the cultivators live on their own farms, which are scattered about, and it would be very troublesome for them to have to go to the village headman for the issue of their licences. If some cultivators are given guns which are licensed then those guns may be utilised by their neighbours; you can provide the headman with guns and also some prominent cultivators.

51,281. Supposing the whole body of villagers under the village headman have the right to 3 or 4 guns which may be distributed according to the needs of the men, would that meet with your approval?—Yes, that would also be good.

51,282. Somebody must be made responsible for the guns, otherwise they might go into the hands of undesirable persons?—Yes.

51,283. You say that all bullocks should be castrated. Are you representing actually the sentiment of the peasantry in the Deccan?—Yes.

51,284. *The Chairman*: You are representing the views of your members, are you not?—Yes.

51,285. *Dr. Hyder*: Have you gauged public opinion on this point?—I think so.

51,286. Do you think that the Hindu peasantry will not object to that?—I do not think so.

51,287. *Sir Chunilal Mehta*: On page 435 you speak of smut. Is much *juari* grown by your association?—Yes, in the Nira valley it is grown.

51,288. Does it suffer from smut to a large extent?—Yes.

51,289. And have you not found sulphate of copper satisfactory?—Yes, it is effective, no doubt.

51,290. Then why is it not used? You say: "the use of copper sulphate as a preventive of smut is an instance where propaganda has failed to introduce this improvement." What makes you say that?—Because the consensus of opinion amongst our members is that smut does not affect the *juari* as much as is made out by the Department.

51,291. Is it not the case that smut does not attack *juari* every year, but that when it does attack it, the damage done is very great?—Yes; but proportionately the damage is not as heavy as the Department think it is.

51,292. Would you say the same about *juari* grown in dry tracts?—Yes, that is the opinion of our members.

51,293. Have you formed any estimate of the loss per annum caused by the smut disease?—No.

51,294. It has been put down as something like 80 lakhs of rupees a year. Is it not the case that the use of sulphate of copper is regarded more as an insurance against an attack of the disease, rather than as a curative?—Certainly.

51,295. Are the cultivators inclined to spend this money on mere insurance?—What the cultivators say is that it is not a perfect preventive against smut.

51,296. So, it does a great deal of good?—It does, but not so much as in the case of grapes.

51,297. Supposing no copper sulphate at all was used for preventing smut, would the damage be very great?—Most of the seed in the Deccan is not dipped in copper sulphate; there is very little area in which it is done.

51,298. Why?—The cultivators say that the smut does not affect their crops very much.

51,299. Not because of the expense?—No.

51,300. Have you any idea as to what it costs per acre to steep the seed in copper sulphate solution?—It does not cost much.

51,301. It costs an anna per packet?—Yes.

51,302. And a packet is enough for about an acre?—Yes; for six seers of seed, which is the seed rate per acre.

51,303. I was under the impression that this research done by the Agricultural Department and its propagation has been very beneficial?—We, at least, do not think so.

51,304. You make some remarks about consolidation of holdings on page 437. If legislation were undertaken on that subject, would there be much

opposition from the people?—Legislation must be made for those tracts where fragmentation has done a great deal of evil.

51,305. Has it done a great deal of evil in the irrigated tracts?—No. In the Mutha valley it has. In Manjri we have got people owning as little as 2 acres of land, but even there I have seen two or three brothers combining together and consolidating their holdings; they do that even without legislation.

51,306. Would you welcome legislation both for prevention of fragmentation and for consolidation? You say that for each tract a limit should be fixed, and below that sub-division ought not to be allowed; would you favour legislation on those lines?—Yes.

51,307. On page 437 you say one of the causes of agricultural indebtedness is the payment of assessment. You say that is occasionally responsible for increasing debts. Can you say that from personal knowledge?—No. Sometimes it so happens that at the time of payment of assessment the cultivator's crop is not harvested. It is not that the assessment is high in the Deccan, but at the time of payment of assessment he has not ready cash.

51,308. Is there no provision in the rules by which the assessment can be postponed by a month or so if the crop is not ready?—I do not think so.

You have no experience of that?—No.

Mr. Calvert: The witness does not say that it is a cause of debt; it is a cause of borrowing.

51,309. *Sir Chunilal Mehta*: But that entails a debt later on, does it not?—In the dry tracts it does.

51,310. Do you consider that any steps are necessary to encourage the use of ammonium sulphate?—No; at least in the canal areas there is no need for propaganda.

51,311. On page 439 you say that unless implements suitable to the agricultural conditions are designed there can be no solution. What are the implements that you would like to be designed at present?—We want a seed drill; then a ridger.

51,312. Are you using wooden seed drills?—Yes; all over the country they are used.

51,313. Any iron ones?—No.

51,314. Have you seen any made by the Kirloskar Brothers?—I saw one only recently at the Agricultural Show.

51,315. Do you get into touch with any firm of manufacturers for the supply of these instruments?—Yes; we do.

51,316. Has not anything been done yet?—It has not yet been introduced among the cultivators; it has only recently been invented.

51,317. Would it be any advantage to you to get into touch with Kirloskars Brothers and tell them what exactly you want?—Yes.

51,318. Have you done that?—Yes; we have done that, and I think their crusher is the result of our suggestion.

51,319. As they have met your requirements with regard to the crusher, they can also meet your requirements with regard to drills?—Yes.

51,320. And also with regard to small reaping machines?—Yes; and ridgers also.

51,321. It would be a good thing if some of you visited the factory and let them know exactly what you want?—Yes.

51,322. On page 448 you consider that no one should be appointed as head of a department who was not known to possess the necessary mis-

sionary spirit. Can the work you refer to be done by departmental men, or do you want some other agency to help them?—Even if there are private agencies co-operating with the head of the department, I do not think it will work well if the head of the department is not sympathetic.

51,323. You recommend in one place that Irrigation should be put under the charge of the Agricultural Department?—Yes, as far as distribution is concerned.

51,324. The Agricultural Department have got the proper spirit, have they not?—Yes.

51,324A. Still, you require some outside assistance?—Yes.

51,325. For instance, your own example is doing a great deal of good in your neighbourhood?—Yes.

51,326. You would welcome any such organisation?—Certainly.

51,327. Have you considered what that organisation should be?—No; I have not.

51,328. *The Raja of Parlakimedi*: On page 431 you say: "There is the further factor that the general agriculture of the country, which is mainly dry agriculture, does not even in good seasons provide remunerative work to the agriculturist throughout the year." Do you refer there to this Province, or to the whole of India?—I am referring only to the Deccan.

51,329. You think enough research has not been done on dry crops?—Yes.

51,330. In what lines has research to be done?—Conservation of moisture, having small *bunds;* these are the things; the improvements should not entail costly machinery.

51,331. Are the people taking sufficient advantage of the existing information?—They do not even know what the Agricultural Department is doing at the Manjri farm.

51,332. Never mind the Department. Is any non-official body taking up that sort of work?—No.

51,333. How are they carrying on their cultivation. What are their chief crops under dry cultivation?—*Bajri* and *juari*.

51,334. You do not think that the method they are following is good enough?—Certainly it is not good enough.

51,335. Do you want suitable implements to preserve the moisture, or what other aid do you want from the department?—I do not think costly implements will do. What they are advocating at the Manjri dry experimental station at present is quite sufficient. But the information should be made available to the people; they do not know it yet.

51,336. In what way? By demonstration or propaganda?—Demonstration and propaganda, both.

513,337. You think it will be quite widely taken up?—I do think so.

51,338. Has your societiy taken up this work to any extent?—No.

51,339. On page 432 you say: "Another line of research to be suggested is the improvement of the grasses of the country." Are you aware that in parts where there is abundance of grass, even when it is stacked in the middle of the village people are not taking sufficient advantage of it?—I do not think there are any instances of that kind here.

51,340. There are concrete instances of that sort, where the department cuts the grass, stacks it in the middle of the village for the benefit of the people, and offers to sell it to them at moderate prices, but the villagers do not touch it. Do you think things would be better here if research work on grass were done?—The stacked grass will be taken advantage

of only during famine years and not in ordinary years, because we feel the scarcity of grasses only in June and July.

31,341. Do they preserve grass by any recognised method at present?—No, they do not.

51,342. There is no system of preserving fodder for cattle?—In some tracts they do stack the fodder under the soil and put earth on it.

51,343. Before research work is taken up, do you not think they should be taught the habit of preserving grass for their cattle?—What I mean is that the *mal* lands, which are in abundance in the Deccan, should be sown with grasses which are suitable for those *mal* tracts. It is very light soil, and it does not grow any grass at all.

51,344. Is there not a clamour for cultivation in that area?—In these *mal* tracts they cannot grow anything.

51,345. It cannot be reclaimed for cultivation?—It can be reclaimed for cultivation, if there is good rainfall. But there are some hilly tracts where we do not get so much rainfall, and we have to grow grasses on such land.

51,346. Even if the grass is grown, the people should be taught how to keep the grass as food for their cattle?—Yes.

51,347. *Sir James MacKenna*: What are the objects of these various Irrigators' Associations? Why were they formed?—They were mainly formed to submit their views to Government on irrigation matters.

51,348. When did you start them?—In 1924.

51,349. Are you in close touch with the Irrigation Department? Do you submit representations to them?—Yes.

51,350. On local points?—Yes.

51,350A. Have you got a central committee, or do you just form a little committee to deal with cases like this?—We have a central committee.

51,351. These five associations are separate institutions?—Yes.

51,352. There is a central committee as well. Is it permanent, or is it just a small committee formed to draft this reply?—It is permanent.

51,353. When did you form the central committee?—We formed the central committee in 1924, and all these associations are affiliated to it.

51,354. They send representatives to that committee?—Yes.

51,355. Are you satisfied with the result of your representations? Do you think it is of great help to the cultivators?—Yes. Recently we had a deputation sent to the Commissioner. We gave him all the statistics about *juari* and *bajri*, and he was very much impressed by our representation. It is an extremely good scheme, representing interests like that.

51,356. *Mr. Calvert*: You put down some interesting evidence on the question of encouraging the agriculturist during the period of eight months, when he has no work on his holding. Is it your experience that he wants to engage in any work?—Yes.

51,357. He wants work to do?—He wishes to be engaged in some industry, but he does not want to leave the farm.

51,358. Later on, you mention the difficulty of finding suitable markets?—Yes.

51,359. Suppose he found suitable markets and sold his manufactured goods, what would he do with the money?—I think he would improve his farm.

51,360. In what way?—If he has got a dry farm, he will have *bunds* erected, and then he will have some sort of hoeing machinery.

51,361. Why can he not make *bunds* in his spare time?—I think he does to some extent, but it does not pay him. He must have something for his maintenance, and the crop that he gets is generally sufficient only for two or three months.

51,362. The great source of potential capital for these poor people is their own labour. Can they be persuaded to use their own labour for the improvement of their own holdings?—Supposing there is a family of five or six persons, the outturn from cultivation is not sufficient for even two to three months, and some of the members of the family have to go out.

51,363. The family is not producing sufficient food for its subsistence?—It is not.

51,364. On page 441 you give details of work during the cultivating season in the dry tract. Is that about accurate?—Yes.

51,365. It seems to me that the detail shows about 50 days' work a year for the bullocks. Is that accurate? It is six days for harrowing just before sowing, six days for hoeing, 10 days for threshing, 15 days for ploughing, eight days for first harrowing, and five days for second harrowing in preparation for the next season.—That is the rough programme for the average holding of 20 acres.

51,366. Do you mean that a holding like that could only use bullocks for 50 days in the year?—Yes.

51,367. For the remaining 310 days the bullocks are idle?—Yes.

51,368. Does that suggest that more bullocks are being maintained than are necessary?—During his spare time, if the man has got a cart he generally hires it out and gets some money from such hire.

51,369. Apart from carting, would he put them to any other use?—No; he does not make any other use of them.

51,370. So the bullocks really lie idle for the greater part of the year?—He does not allow them to lie idle.

51,371. He has 310 days to spare for the bullocks?—But he uses them in some way or other.

51,372. In what way?—He gets money from the carting.

51,373. Do all do that?—Generally all of them do it in the dry tracts.

51,374. What do they cart?—*Chunam* or stones or some such thing. They may even take the carts 20 to 30 miles away from their village, if there is any construction scheme or anything of the kind.

51,375. For how many days in the year would a man like this employ himself in carting?—Four months generally. From April until the rains start.

51,376. He employs his bullocks in all 120 days in carting and 50 days in his cultivation. The bullocks lie idle for the greater part of the year; is that not the case?—I will just explain. Generally, in dry cultivation, a man owns one pair of bullocks. When he has ploughing to be done, he brings the bullocks of his neighbour and then ploughs the land. When the ploughing is over, he goes out for carting purposes.

51,377. But you have given us details to show that these bullocks are being kept occupied for about 170 days in the year, 50 days on cultivation and 120 days for carting work. That is all that the bullocks do?—Yes.

51,378. *Mr. Kamat*: You are a graduate of the Poona Agricultural College?—Yes.

51,379. And you have been doing private farming?—Yes.

51,380. I should like to hear first hand your views as to any difficulties which agricultural graduates meet with in doing private farming?—It is a difficult matter to say what these difficulties are.

51,381. So that is the first difficulty?—Yes.

51,382. I suppose you know the Loni school?—Yes.

51,383. Is that liked by the parents of the boys because of the agricultural training imparted there or because of any other special features?—Because Government give scholarships to students there.

51,384. Is that the reason why they go there?—Yes.

51,385. In your note you suggest that small industries should be started round about the countryside, for which boys of agricultural classes should be given technical education. That is to say, you want the sons of agriculturists to be trained both in agricultural and in technical matters?—Yes. The technical and agricultural education should go along with the general education. That is my suggestion.

57,386. They should spend five months on the field and seven months in the factory?—I do not mean technical education of a very high order.

51,387. Anyway you want to take them off their fields?—Not off their fields.

51,388. What is the use of giving them technical education then?—Technical education should be given to them about five or six miles from their village. We have suggested that the education should be given in the taluka.

As long as the occupation is not purely agricultural, you want to take them off the agricultural occupation; otherwise, what is the use of it? He is a half-agriculturist and half-factoryman!

51,389. Now, with reference to these difficulties of water distribution in the canals for which your associations have been formed, is it not a fact that the Irrigation Department offered to the cultivators that they should distribute the water themselves on the co-operative basis?—Yes, it is a fact.

51,390. They did not accept that offer?—No.

51,391. What was the reason why they could not distribute the water in the village?—Because they thought there would be greater difficulties in their way if they were to distribute their own water.

51,392. That means the villagers would quarrel over the water much more than at present?—Yes.

51,393. Have you noticed any difference in the dry tracts and in the irrigated tracts in regard to the amount of energy and the heart which the agriculturist puts into his labour throughout the year? Have you any ideas about it? I mean, when he has got the canal water, does he not work with a better heart and with more energy, and in the dry tracts is he working almost with a despairing mind?—Yes, I have noticed such a tendency.

51,394. That means, in the dry-farming areas the man has no heart left, whereas, given canal water, for instance, on the Godavari Canals and other parts of the Deccan Canals, the man puts forth more energy and he works the whole year in his sugarcane fields, &c.?—Yes.

51,395. The problem therefore is——?—Water and irrigation.

51,396. It is no use blaming the man for being lazy or less industrious in dry farming when he has lost heart in the whole thing?—That is so.

51,397. Round about towns have you noticed that carting has become a secondary occupation?—Yes.

51,398. Why is it so?—Because dry cultivation is uneconomic and does not pay.

51,399. On an average does it pay a man to keep a pair of bullocks and a cart to ply for hire? Have you any ideas about it? Have you gone into the economics of carting? How much can a man with a pair of bullocks earn per day if he does carting, and how much if he employs them on a farm? Take, for instance, your own town of Poona. If a man with a pair of bullocks and a cart worked in the railway yard, at the end of the day how much would he have earned, how much would be the cost of feeding the bullocks and how much would he gain for himself? And how much would he earn if he employed those bullocks on some man's farm?—I have not worked it out.

51,400. Which would pay him better?—I think he would prefer to work on some man's farm if he got the opportunity, even if he got less.

51,401. Have you ever seen a man keeping his pair of bullocks idle for a single day of the year?—No; he does not keep them idle.

51,402. He has no tendency to remain idle if he can find work for his bullocks?—He would prefer to work the bullocks on a farm rather than employ them in carting in a town.

51,403. There again there is no fault to be found with his ways?—That is so.

51,404. *Dewan Bahadur Malji*: What are your views about the education to be imparted to children? You say general education should not be allowed to suffer or be neglected, and on the other hand you advocate agricultural and technical education. How do you reconcile all these three at a time unless you want to give a bias to technical and agricultural education?—Our idea is that in a village agriculture should go hand in hand with general education, and when the boy is grown-up, say, 13 to 15 years old, when his primary education generally ends, he should make a commencement in his technical and agricultural education.

51,405. It might bifurcate?—Yes.

51,406. What is the subsidiary industry in the dry tract on your side?—There is none, except carting.

51,407. Can you suggest any for your part of the country?—Nothing in particular.

51,408. You have advocated weights and measures being standardised so as to avoid a great deal of fraud?—Yes.

51,409. Otherwise the illiterate people are likely to be duped?—Yes.

(The witness withdrew.)

Mr. N. R. KEMBHAVI, Managing Agent, The Bijapur Mahalaxmi Company.

Replies to Questionnaire.

QUESTION 1.—RESEARCH.—(1) Research affecting the welfare of the agriculturist. In this, the word "Research" is a bit confusing. In ordinary parlance it is used with regard to science. If it is to be understood by its literal meaning, namely re-search, my reply is it is quite necessary. We must study the economic changes that have taken place within the last hundred years, the condition of the agriculturist as it was (1) before the advent of the British rule, (2) thirty years after, (3) fifty years after, and (4) at present.

The following are chief points on which accurate information, as far as possible, is necessary.

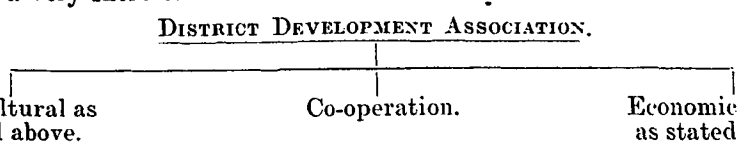
(1) Population:—Male, female, children under 12 years, the percentage of increase in population, the death rate.

(2) Education. Literacy of males and females.

(3) The extent of holdings per head of population.
(4) Fragmentation—how and why it has happened.
(5) The nature of the crops and their average yield per acre, what it comes to per individual head.
(6) The variation in price.
(7) Occupations, main and subsidiary.
(8) Savings.
(9) Rainfall.
(10) Yield from the land, quantity and quality and its rupee value
(11) Labour conditions.
(12) Stamina of men, women and children.
(13) Emigration and immigration.

These are the main points on which correct information is necessary, with a comparative knowledge of villages which have made decided and marked progress during this period, therefrom to deduce conclusions in order to find out ways and means to improve those that have not improved (if capable of improvement), with the object of making improvements.

In order to do all this, Government organisation is quite necessary, with competent men at the helm. But it is also a fact that Government alone will not be able to do all this. They must co-operate with the educated men of each district, stimulate interest or love for this work, and Government, as a sort of appreciation of such work on their part, should honour them. As a prominent member of the Bijapur Development Association of my district, namely, Bijapur, I beg to submit that associations like this should be started in every district and subjects of agricultural importance, such as *bunding* the fields, providing good seeds and manure, the marketing in the best possible manner of the produce of the agriculturist without the unnecessary additional expense of a middleman as far as possible, the study of the economic condition of the agricultural population, all these should form an important part of the work of such associations. I am showing all this in a sort of genealogical table from which one will understand my ideas within a very short time.



As there are for each district two or three agricultural Overseers, there ought to be one District Economic Superintendent. He must be a graduate of a recognised University with knowledge pertaining to his work. Over and above this, he must know something of Indian Agriculture and other important industries of the country. The Agricultural Overseer, the District Economic Superintendent, the Co-operative Organiser, with two more non-officials who should act as secretaries of such an association, should find a place on different committees for different branches of activities. All these three branches of acitivity are necessary in order to improve the main profession of the country, namely, agriculture. Simply agricultural activities are not sufficient to bring about the prosperity of Indian agriculture. Systematic and co-ordinated attempts in these directions are quite necessary. One without the other would defeat the object, and there would simply be waste of money and energy. Therefore, in my humble opinion, work on the lines suggested above would give better results. Another reason to support my argument is that India is a very big country. Each district has its own problems and its characteristics. Therefore, a close study from these three aspects is quite necessary to chalk out ways and means for the welfare of the agriculturists of the district. The best men for doing this are the men of the district only.

Now as to the scientific value of the indigenous theory and traditional methods of agriculture, what I would say is that there is nothing that requires any radical change or complete overhauling on account of the fact that the present traditional method is the product of so many years of practical experience. What is required to be done is, in my opinion, to bring it abreast of the times, that is, to make use of the mechanical inventions of the day and to settle how far such modern agricultural machinery, as is manufactured by European countries, could be useful under Indian conditions, and, failing that, whether new machinery could be made to suit our conditions; secondly, to organise distribution of better quality seeds in order to improve the quality of the produce; thirdly, to study the application of organic and inorganic manures; fourthly, Government should arrange the financing facilities and better organisation for disposing of the products of the fields on a co-operative sale society basis in order to enable the Indian agriculturist to realise the maximum price with the minimum expense.

QUESTION 2.—AGRICULTURAL EDUCATION.—Though I am not at present personally connected with any educational institution, I am inclined to offer my suggestions from the fact that the education of our brothers and our sons and our brothers' sons is a most important subject which we have got to think of every day, and the difficulties we realise in determining the future career of our boys are the problem before every family in India. Ours is a big family consisting of a father, eight brothers, three cousins and about a dozen sons of the elderly married brothers. Some of the brothers are still receiving education in Government schools and colleges. All the grown-up brothers are educated in the modern sense of the term. Some of them are graduated in Arts and Law. We own about 700 to 800 acres of the best cotton-growing land and a big garden. At one place there is more than 300 acres in one block and at another a block of more than 100 acres. It is considered in our district that ours is a fairly rich family. As such, we can increase our lands very easily to a thousand or two thousand acres of land provided our own brothers and brothers' sons are prepared to lead the life of true agriculturists and are able to earn a decent income as a return for the investment. Having no institution to impart such education which creates a love for agriculture and makes them physically fit to follow the profession of a true agriculturist, hardy enough to work under the midday sun or to exact work from the labourers in the field all day long, having no such institution, I say, how can we put our boys to the fields and put more money into the developing of our lands? What we at present do is to lease out our lands for annual payment of a certain amount of money, irrespective of good or bad harvests, or, if one is not willing to do this, for a share in the total produce of the fields. In short, we are absentee landlords and are not cultivating our own hundreds of acres of lands ourselves, though any one of my family could do it with better profit. Why should there then be such a distaste for such a beautiful and health-giving profession as agriculture? This is primarily due to the kind of education and the way in which we are educated in India by the British Government from our childhood up. It is simply literary, fit only for making good clerks, subordinate Government officers, money-making pleaders to increase litigation amongst the agriculturists and indifferent doctors. Pleaders are a drag on the society; their number is increasing by leaps and bounds, irrespective of so many pleaders having to starve, only for the apparent dignity of the profession. The worst of it is that sons of landlords, *kulkarnis*, and *patels*, instead of developing their lands, become clerks in Government service or briefless pleaders or ignorant doctors. Is this not a very anomalous position? What is all this due to? I, for one, would surely put it down to the kind of education imparted to our boys from their childhood up to the age of 25. What a shame is this! Ours is

primarily an agricultural country in which 80 per cent. of our population practically live on the income of the land, and it is the only source of livelihood. Even 15 per cent. of the remainder are automatically affected by the prosperity or otherwise of the agriculture. When the truth of the case is like this, is it not a shame that our education is bereft of any agricultural tint even. Is it not a folly to give only literary education just to turn out thousands of beggar clerks, suicidal pleaders and unnecessary doctors? The fun of this too is how they work their way up, the nasty and base tricks they use in order to put down their competitors or one who is higher up, in order to acquire his position. All these qualities go to debase the mind of man. And, here in India, this state of things is confined to the educated men of our country who take pride in calling themselves the brain of India. Is this not shocking from the country's point of view? If the head is rotten, what higher things can be expected from such a constitution? I, for one, would put it down straightway to the kind of education we are getting in our schools and colleges. Hence I advocate that agricultural education in India should form part of primary and secondary education.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) The reply to this point is to be found in the previous paragraph, and to reiterate these points again they are education, demonstration and exhibition.

(*b*) Field demonstrations are quite necessary. Every agricultural village must have a demonstration farm, and this should be run by the villagers themselves, and this should be subordinate to the district demonstration farm, and there should necessarily be one district demonstration farm for each district. This should be in charge of a graduate of an Agricultural College having practical experience in field work for not less than three years in different parts of the country.

(*c*) The following are the methods:—

(i) The head of the experimental farm must mix with the cultivating classes very closely and bring home by lecturing and by actual demonstration the good and the bad results of the experiments carried on the farm.

(ii) Groups of cultivators should be taken to places where such experiments are successfully conducted.

(iii) Exhibitions should be held and prizes awarded to successful cultivators.

(iv) Rudimentary education should be imparted.

(*d*) Take the propaganda work done by the Union Agency, Poona, and Messrs. Shaw Wallace & Co., with regard to the use of ammonium sulphate, and that of Messrs. Parry & Co., of Madras. The propaganda work done by these three firms has borne some good results. But they could not achieve in proportion to the amount spent on it on account of the fact that it is not a people's propaganda work, neither of Government. They could only do a part of the propaganda work and not all. Hence the result is not quite in conformity with the investment.

QUESTION 4.—ADMINISTRATION.—(*a*) My suggestions are:—There should be very close and co-ordinated efforts both from the people and the Government. If Government commences activities on this line there would naturally spring up many activities from the people. What is required is initiation and this the Government should undertake.

(*b*) In my opinion, what is required most urgently is not the highest academic knowledge of agriculture but only consistent and co-ordinated efforts are necessary and on highly organised lines. Pooling the services of the experts is also a very good idea and a most economical one too. A conference of these officers of different Provinces, two times a year, will be good. This will help them to compare notes and to act on the suggestions or conclusions drawn therefrom.

(*c*) Personally, I may not be quite satisfied with the services of the departments mentioned therein, but the basis on which they have been arranged are all right. With an exacting public these departments will be required to show more efficiency. As there is required more zealousness on the part of the officers in charge of these departments, there must, simultaneously, be the conception of undertaking work from those concerned on the part of the responsible non-officials also.

QUESTION 5.—FINANCE.—(*a*) This is the most important of all points and goes a long way in the efforts to improve the agricultural classes in India. This must be, as far as possible, a Government body. The last word must rest with the Government. The people are not so much educated and their sense of duty to the public is not a guaranteed quality; misuse of funds and its dire consequences would result and thereby the hand of progress would be thrust back, and what little progress is made by other efforts in other directions would be also annulled. Hence I call this the most important of all the points and as such must be organised very thoroughly.

(*b*) Strict supervision but a lower rate of interest.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (i) This has practically grown chronic in India and is the root cause of so many other evil consequences. Unless and until things improve in this direction, progress by any other methods will not be possible. Lack of financial facilities, ignorance of the people, social customs and lack of organisation and united efforts are the causes of borrowing.

(ii) The Government financing banks, private banks, and also peoples banks and their lands.

(iii) Uncertainty of the rainfall as far as my district is concerned, added to the other causes mentioned above in (*a*) (i).

(*b*) Starting of land mortgage banks in each district. At present the cultivator borrows money at high rate of interest; it is multiplied by compound interest; thus the debt becomes enormous and he has to sell his holdings to a *sowcar* who becomes an absentee landlord. This takes away the real interest on the part of the true cultivator in the land. If the land mortgage bank advances money at a low rate of interest and does not add compound interest, the loan will not swell and thus it will be within the means of the cultivator to discharge the debt easily.

It is no use enforcing the application of the Usurious Loans Act. In that case the cultivator will not be able to get any loan however urgent his needs be. The *sowcar* will insist upon the cultivator passing a sale-deed instead of mortgage. This is being done now in places where the Deccan Agriculturists' Relief Act is in force. In the absence of any money facilities for the agriculturists, such an Act will do more harm than good because Government will not advance any money and will prohibit the *sowcar* from doing so. This will be a dog in the manger policy. Start banks first and then pass a Usurious Loan Act.

(*c*) No. If such measures are taken the cultivator will make a row. He will see that he has lost his proprietary right over the land. He will lose all his credit. To reduce the cultivator to that position is quite imprudent. Instead of doing that he may be educated to adopt thrift.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) and (*b*) So long as there are Hindu and Mahommedan laws entitling shareholders to have strips in each land, it is difficult to put a stop to fragmentation. Thus the first step will be to make laws abrogating the provisions of those laws. Thus there will be a wholesale and radical change. How far this step is desirable remains to be seen. Under the existing Bombay Land Revenue Code strip, below a particular area are not made. So also, under the Partition Act, the Collector has the power to make such lots as he deems fit. I think

these safeguards are enough. The family of an average cultivator is small enough and it can maintain itself on a piece of 5 acres, provided, of course, he gets at least a 12 anna yield.

(*c*) I am against legislation. Make any legislation and there will be loopholes of escape. The consequence will be that it will open the door for fresh litigation resulting in heavy debts.

QUESTION 8.—IRRIGATION.—I have not studied this point. Even to a layman it is apparent that there is no irrigation whatsoever in my district. There are four rivers flowing full. Rainfall is scanty. Every fourth year there is famine.

Under these circumstances irrigation appears to be the only saviour and if Government do not provide that much disaffection is bound to be caused amongst the people of my district.

QUESTION 10.—FERTILISERS.—(*a*) As this is my special subject (as I have added to my other industries a manure works) my suggestions are from the experience I have gained in this direction.

Both natural manures and artificial manures are quite necessary. Conservation of natural manures, such as collection of leaves and refuse and allowing them to decay and turning them into manure, is the cheapest way of preparing very good manure. Every man and animal gives out some waste and that waste should return to the soil. This is the correct principle. How to effect it is a great point. Much educational work should also be done to teach the benefits of preserving these manures. The spread of agricultural knowledge will bring in its train an appreciation of the importance of manure. Regarding artificial manures namely oil cakes, India is the greatest grower of oil seeds in the world and as such, it has an abundant supply of potential manure. Unless there is a regular net work of irrigation and an enormous extension of wet cultivation, the demand for manure will not be on an extensive scale. For the present all the oil cake turned out in the oil mills in India is not consumed locally for manure or for cattle feeding. More than three-fourths is exported outside India.

As the chemical manure such as ammonium sulphate, superphosphate, sodium nitrate, etc., are made outside India, we must for the present buy from such countries which have organised manufacturing of these manures. It is not possible to manufacture them ourselves so soon unless other factors are present.

(*b*) Yes. It is necessary to put some sort of check on the fraudulent manufacturing or selling of manures. It is much more necessary in a country like India where 99 per cent of the agriculturists are ignorant. They are not in a position, like European planters, to distinguish adulterated manure from genuine. India is also a country where cheap things find a ready market irrespective of the merits or demerits of the goods. Under these circumstances some sort of legislation is necessary as in other countries.

(*c*) Demonstration and free distribution at the beginning and comparing notes.

(*d*) In the Madras Presidency the result of the work done by Messrs. Parry & Co., has spread to Baramati, Kopergaon, Belapur, Poona in Bombay Presidency, Mysore State and Ceylon. I have visited all these places personally.

(*e*) Not sufficiently.

(*f*) To provide cheap fuel for poor people by releasing the trees of small forests and by showing the greater value of cowdung as a manure.

QUESTION 11.—CROPS—(*a*) (i) Cotton, *juar* and wheat are the staple crops of my district. A method of ripening the *mungari juar* crop within four months should be investigated because this crop is the most helpful

of all crops (though it is not a very extensive one) in the sense that it is grown at the close of the season, when scarcity or want of the new crop is being felt. It takes 5 to 6 months to ripen and if there is no rainfall after the fourth month the crop suffers. If, therefore, this crop is made to ripen within four months it will be a great help to the poor, and this I think could be done by the use of proper manures. As regards cotton, though the quality in this district belongs to the same grade as cotton like Hubli and Dharwar, actually it turns out to be much poorer in quality and quantity than Dharwar. This point is worth investigating.

(ii) The remarks made about *juar* are applicable to these points.

(iii) Distribution of proper seeds is one of the essential factors in improving the quality and quantity of a crop and as such it must be done.

(iv) I have not much knowledge about it since this point is not a prominent one in my district, but in my opinion manures like *nimb* cake, *karanja* cake or chemical manures such as ammonium sulphate and sodium nitrate would, along with fencing arrangements, stop the wild animals from spoiling the crops.

(*b*) I do not suppose that there is any except maize.

(*c*) Fruit trees and flower gardens and vegetable cultivation.

QUESTION 12.—CULTIVATION.—(i) The existing system of tillage is bad because it does not effect deep ploughing which is an essential condition in the absorption of all the moisture and its retention.

(ii) The customary rotation and the more important crops must be determined according to the economic return.

QUESTION 13.—CROP PROTECTION, INTERNAL AND EXTERNAL.—(i) This is a very scientific side. It is not possible to start investigation at all places and centres. This could only be done in very well equipped laboratories, that is the Agricultural College of the Presidency or the Pusa Institute, but there must be one like this.

(ii) The recommendations and advice of the mycologists should be followed by the agricultural farms.

QUESTION 15.—VETERINARY.—(*a*) It should remain under a separate departmental head and should not be made over to the head of the Department of Agriculture unless the latter is an administrative officer belonging to the I.C.S. If the department is kept under a Director of Agriculture belonging to the Indian Agricultural Service, the interests will conflict and the subordinate department is sure to suffer.

(*b*) (i) Yes. They are under the control of District Local Boards and the system is working well so far as the dispensaries are concerned.

(ii) The need is not being met so adequately as it should be. There ought at least to be one dispensary at each taluka station, and an itinerating one for each taluka to meet the demand of the rural area.

(iii) Not so far as the management of the dispensaries are concerned. I would advocate the transfer of control. But the question of meeting the demand for veterinary aid during the time of outbreaks of contagious diseases should be taken over by provincial authorities.

(*c*) (i) So far as my district is concerned, I find that the agriculturists are fairly taking advantage of the veterinary dispensaries if they lie within their easy reach, but most of them cannot do so on account of the distance. More dispensaries, both stationary and itinerating, should be started so that the cultivator is not required to drive his sick animal a long distance.

(ii) There are no touring dispensaries in this Province except that the stationary men undertake a certain amount of touring to attend to contagious diseases and to advertise the usefulness of the veterinary institutions.

Mr. N. R. Kembhavi.

(*d*) The vastness of India, the interlying Native States and the illiteracy and ignorance of the ordinary cultivator are the general obstacles in dealing with contagious diseases. I would advocate certainly legislation dealing with notification, &c., failing which the only means of improving the existing conditions is by gradual persuasion and education of the masses to an appreciation of these measures.

(*e*) None, so far as I know.

(*f*) Ignorance, apathy, conservatism and, lastly, fatalism on the part of the cultivator are the obstacles in the way of popularising preventive inoculations. I understand that a small fee is charged in case of other contagious disease than rinderpest, and it does act as a deterrent.

(*g*) Yes. It is desirable that provision of further facilities for research should be made both by extending the usefulness of the Muktesar Institute and by setting up a Provincial Research Institution. Investigation of diseases on the spot and finding out means of curing such diseases should be taken up by provincial institutions, and the higher research and the preparations of sera and vaccines should be left to Muktesar.

(*h*) No more administrative officers on very high pay are necessary, and so I do not recommend the appointment of a superior veterinary officer with the Government of India. Apart from answering the above questions I would submit, further, that veterinary education in this Province should be improved by instituting higher studies in that science, and the course of education should run longer, say at least four years. The standard of preliminary education for entering Bombay Veterinary College should be raised. The first year in Arts ought to be the minimum qualification for admission to the college. A good Veterinary Surgeon who is supposed to be a specialist in his subject can be produced only after a good general education. After education comes expansion of the Department. I have already stated above, the present minimum requirement of the Presidency, namely, our stationary dispensary at each taluka station and another itinerating one to meet the demand for the rural areas. Besides, there ought to be a special mobile veterinary corps to combat the epizootic diseases, especially rinderpest, which is the most prevalent and destructive disease affecting stock in India. The problem of dealing with epizootic diseases and controlling the spread of infection will always form an important part of the activity of the Veterinary Department in India, and the success of it will depend (1) on the increase in number of the veterinary personnel of all grades, (2) improved facilities for the education of the veterinary graduates, and (3) improvement in the present system of reporting diseases.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—Before the inventions in cotton spinning and weaving machinery and its development and perfection in Lancashire, in India and in Japan, hand spinning and weaving was a great industry in India, next only in importance to agriculture. They were co-existing, the one depending upon the other. Disorganize one and you will disorganize the other. Hand spinning and weaving has been disorganized, and hence agriculture has perforce turned out to be less remunerative. With this the blessings of the joint working have gone away. Party quarrelling, immoral tendencies, dissipated habits and such things have taken the place of industry and thrift, with the result that agriculture is less paying and less attractive.

Next to food stuffs comes clothes in human wants. Agriculture gives one, and spinning and weaving gives the others; I, too, admit the philosophy of the *charka* as advocated by Gandhiji. But it looks like a conundrum to me how hand spinning and weaving can be brought back to its place of importance in view of the mechanical and scientific inventions of the times. Hand spinning and weaving is most unremunerative as far as its worth in rupees, annas and pies is concerned; but it must also be considered, if it should go,

what industry should take its place. It is very difficult to suggest one, off hand.

But, in the absence of any, it is advisable to encourage hand spinning and weaving amongst agriculturists, more especially amongst cotton-growing agriculturists, since they have the double advantage in that they grow cotton and in that they have more leisure. It also keeps them busy, prevents them from wasting their time and energy in unnecessary pursuits, and supplements their agricultural income, which is also not much. Thus, on the one hand, it contributes to the cultivation of the good qualities of morality and thrift, and on the other it goes to make up the deficiency in income. Efforts, therefore, must be made in the direction of keeping up hand spinning and weaving as far as possible, even at some cost, not for its actual earnings but for its moral effects. It has also the advantage of traditional instincts.

(*a*) Poultry rearing cannot be universal in India, on religious, vegetarian, non-vegetarian grounds. Its scope cannot therefore be unlimited until the products of poultry-farming find foreign markets outside India. But this is also affected by other questions such as climate, packing, railway freight and so many other points. All these cannot be arranged all at once, nor in the near future. Till then this industry cannot be advocated as universally good.

(*b*) Bee keeping.

(*c*) Rope making, basket making, earthen pot making, utensil making, and other such industries are going on. Even these introduction of machine and factory scale productions threaten; this limits the growth of these industries as a by production.

QUESTION 18.—AGRICULTURAL LABOUR.—(*a*) Hold out good prospects, conveniences of living, good transport, satisfactory dwellings, medical aid.

(*b*) No, as far as my district is concerned. On the other hand, on account of scarcity of rainfall and poverty, agriculturists have to emigrate to places as near to their homes as possible where they think they can earn a living wage till better times come.

(*c*) Starting such works as *bunding*, land improvement.

QUESTION 20.—MARKETING.—(*a*) Being myself a merchant, I have been making purchases in many markets of this Presidency and other Presidences, and I have very little to complain of, as those markets are not newly established. They have been there hundreds of years, and things are in their place according to the conditions in India.

At some places it has happened that there are more merchants and selling establishments than there is business for them, and naturally some of them are struggling on account of lean years and want of sufficient business.

(*b*) Yes.

(*c*) Yes, at present produce from the fields is brought in a most shabby way. No sufficient care is taken to harvest properly. The grain is never winnowed properly on the farm, and hence a large percentage of dirt and rubbish is mixed with it, and screening has got to be done in the market, which function could better be done in fields, thereby saving unnecessary transport expenses and obtaining a better price for better quality. As far as packing is concerned, there is no complaint, since everything is packed in gunny bags. Packing suitable for export business is better done by the exporters according to their requirements.

(*d*) This is necessary in order to effect better marketing.

QUESTION 21.—TARIFFS AND SEA FREIGHTS.—(*a*) Certainly due regard has not been paid in fixing tariffs and sea freights in view of the intrinsic market value of the goods; for instance, railway freight from Bijapur to Bombay for oilcake or crushed bones is the same as for cotton or linseed or wheat. Looking to the disparity in value of these goods it appears absurd.

QUESTION 23.—CO-OPERATION.—First and foremost is rudimentary education for the first 10 years; then encouragement to start all the nine points suggested. All these are quite necessary to improve the agriculturist in India. Both Government and the people should work hand in hand.

Oral Evidence.

51,410. *The Chairman*: Mr. Kembhavi, you are the Managing Agent of the Bijapur Mahalaxmi Company?—Yes.

51,411. Were you ever engaged in cultivation?—Yes.

51,412. In what capacity?—I own about 15 acres of irrigated land and about 800 acres of dry cultivation.

51,413. Do you farm any dry land yourself?—These two years I have been doing it.

51,414. Otherwise you let your land out to tenants?—Yes.

51,415. What is the system of rent? Cash or kind?—In some parts of the district it is not possible to let it out for money. We let it out in shares in the total production.

51,416. Do you call it *batai*?—Yes.

51,417. I think the Mahalaxmi Co., which you are managing are engaged in pressing oilseeds?—Yes.

51,418. Have the company any other line of business?—I have got a ginning factory, cotton-pressing factory, oil-mill; I have a bone-crushing mill and colour, paint varnish works.

51,419. Are you also agents for manures or fertilisers?—Yes.

51,420. Do you publish a balance sheet?—Yes.

51,421. Do you make any profit?—These two years we are not making very good profit.

51,422. How do you account for the change?—The local crop of oil-seeds failed these four years and we have got to import them.

81,423. From abroad or other districts?—Other districts.

51,424. Is it the cost of transport that removes the profit?—It comes to nearly 20 per cent.

51,425. 20 per cent. of what?—Of the total value of the raw material. I have got to pay railway freight and other expenses.

51,426. Where are you getting your oil-seeds from?—From neighbouring places, namely, Gadag, Bellary, Sholapur, Gulburga, Barsi, Salem, Hindupur, Davangari, Byadgi, &c.

51,427. Surely, when you import from neighbouring districts, it does not add 20 per cent. to the cost?—There are other people who have started oil mills there; they have an advantage over us in that they have not got to import oil-seeds from outside, whereas I have to stand the charges of cartage, railway freight, octroi, margin of commission to merchants, &c. The oil mills at these places are in a better position to send out oil instead of seeds.

51,428. Are they financing the cultivators?—No.

51,429. In no case?—No. They only pay for the seeds grown by the cultivators.

51,430. What oil-seeds are you pressing?—Linseed, groundnuts, *til* seed and *kardi* seed.

51,431. Are you getting as much *til* seed as you used to?—No.

51,432. Much less than before?—Yes, because that seed is sown in the months of June and July.

51,433. It is being displaced by groundnut?—Yes.

51,434. Are you decorticating groundnut?—We have a plant for that and we do decorticate groundnut.

51,435. Who does the damping?—We do it.

51,436. Why do you damp your groundnuts?—If the nuts are very dry, the seeds break and the broken seeds fetch less money.

51,437. What is the difference in the percentage of breakages between groundnut decorticated dry and groundnut decorticated damp?—There is no necessity of wetting it in December and January but in March and April we have to damp it.

51,438. Tell me the difference in the percentage of breakages between dry decortication and damp decortication?—About 10 to 15 per cent.

51,439. Do you know that the exporters claim that the practice of damping groundnuts reduces the value in the open market and prejudices the reputation of Indian goods abroad?—I do not know that.

51,440. Do you not crush your own groundnuts?—I am a crusher as well as a merchant.

51,441. Do you decorticate and sell whole groundnut seed?—Yes.

51,442. Have you ever had any complaints about the practice of damping?—No.

51,443. To whom do you sell, as a rule, when you sell whole decorticated groundnut?—To Bombay merchants like Volkart Bros., Ralli Bros.

51,444. Did Ralli Bros. ever complain to you about damping?—Not to my knowledge.

51,445. What market is there for the by-products of oil-seeds?—Colombo and some of the coffee plantations in the Mysore State and also the Continental market.

51,446. They buy for manure?—No; the continental people buy for feeding cattle.

51,447. Is that the whole of your market?—Yes.

51,448. Are you making any fertilisers out of the oil-seed refuse?—Yes.

51,449. Are they selling well?—Yes.

51,450. Are you getting as much oil-seed as you require, or is there a shortage in the market?—There is a shortage in the market.

51,451. Do you think the shortage could be made good without such a drop in price as would eclipse the margin of profit to the grower?—I cannot say.

51,452. Is the margin of profit from growing oil-seeds wide at the moment?—At present there is no wide margin.

51,453. Groundnut is profitable?—Yes.

51,454. The other oil-seed is not as profitable?—No; sometimes the seed is sold dearer than the oil itself.

51,455. Where is your market for the oil?—The local market. When we grow our own seeds in the district, we export the oils to Khandesh. The local seed is grown and crushed by me and the oil is exported to Khandesh, Berar, Bombay and other places.

51,456. For general use?—Yes.

51,457. You do not export it abroad?—No.

51,458. Do you ever export feeding stuffs?—No.

51,459. Do you sell to the exporters?—Yes.

51,460. Do you sell manures to exporters?—Yes.

51,461. What types of manure?—Bonemeal, oil cake powder, and sometimes mixtures of both; I get chemical manures if they want them and supply their needs.

51,462. Are there technical reasons why you should damp your cotton before baling?—On my side there is no damping done so far as cotton is concerned.

51,463. Where does the damping go on?—In Khandesh.

51,464. In answer to our Question 1 on page 461 you say: "As a prominent member of the Bijapur Development Association of my district, namely Bijapur, I beg to submit that associations like this should be started in every district, and subjects of agricultural importance, such as *bunding* the fields, providing good seeds and manure, the marketing in the best possible manner of the produce of the agriculturist," and so on. What is that association doing?—We supply implements, manures, and also help in bunding and other agricultural operations.

51,465. For how long has your association been in existence?—Only for a couple of years now.

51,466. Is it growing in strength?—Yes, it is.

51,467. Do you think that it is going to prove useful in other directions?—I hope so.

51,468. Does your firm lend money to cultivators at all?—No.

51,469. Do you give them anything on account of the crop?—No.

51,470. Do you buy standing crops?—No; only the middlemen do that.

51,471. You buy for cash at your door?—Yes.

51,472. You do not carry at all?—No.

51,473. Would you turn to page 462? You give us there a picture of your own family conditions. You say that you own 700 to 800 acres of the best cotton-growing land and a large garden, and you complain that there are no opportunities for giving the children of the family an education which would fit them for life on the land. Are you familiar with the Loni school?—No.

51,474. What do you think of the Agricultural College as an institution for the education of the landowning class?—It is a nice institution.

51,475. Do you find that education tends to soften the fibres and to render the boy unfit even for managing a farm?—That is the case with the sort of education that they are getting now.

51,476. On page 464, in answer to our Question on Finance, you say that you would like to see a body set up for financing cultivators, and you add that this must be, as far as possible, a Government body. What are you thinking of exactly?—When you sanction a loan the sanction must be made by a Government officer.

51,477. Have you considered the question of providing loans through the co-operative societies?—Yes, that could also be done by providing short-term and long-term loans.

51,478. Are you familiar with the co-operative movement?—Yes, I am taking some interest in it; I am connected with it.

51,479. On page 464 (Question 7) you are dealing with the fragmentation of holdings. You say that so long as there are Hindu and Mahommedan laws entitling shareholders to have strips in each field, it is difficult to put a

stop to fragmentation; and then you suggest that laws might be made abrogating the provisions of the customary laws. Do you really suggest that Government should place itself in opposition to the customary law of the country by passing Statutes to do away with those customary laws?—Yes, that would have to be done.

51,480. You say: "Under the existing Bombay Land Revenue Code strips below particular areas are not made." Are you correct in that statement?—That is what I have been informed; I do not know whether that is actually the case or not.

51,481. I think you are referring to Section 98 of the Land Revenue Code. This is how the section reads: "Except as hereinafter provided, no survey number comprising land used for purposes of agriculture only shall be made of less extent than a minimum to be fixed from time to time for the several classes of land in each district by the Commissioner of Survey, with the sanction of Government." So, that does not relate to the holding; it relates only to the survey number?—I may be wrong.

51,482. Would you turn to page 468, where, in answer to our Question 20 on marketing, you say: "Being myself a merchant, I have been making purchases in so many markets of this Presidency and other Presidencies, and I have very little to complain of as those markets are not newly established. They have been there hundreds of years, and things are in their places according to the conditions in India." Do you agree with the suggestion that in the existing conditions in India the buyer in the market gets a better bargain than the cultivator who sells?—No; in every market regular auctioning takes place; all the merchants are gathered together, and then they buy according to their requirements.

51,483. You are satisfied with the market?—Yes.

51,484. And you buy?—Yes.

51,485. You never sell?—No.

51,486. *Sir James MacKenna*: Of the numerous boys in your family circle, none have expressed a desire to take an agricultural course of training at Poona?—Lately I have sent one of my brothers there, with a view ultimately to put him in charge of the farm.

51,487. So that the picture is not as gloomy as you paint it. Then on page 462 you say: "What we at present do is to lease out our lands for annual payment of a certain amount of money, irrespective of good or bad harvests." Does that mean that you get the same amount whether the harvest is good or bad?—Not necessarily; we give remissions in bad years.

51,488. *Mr. Kamat*: You have been in this oil pressing trade for a number of years?—Yes, for 15 years.

51,489. You started from small beginnings and you have built up this trade?—Yes.

51,490. Do you think there is enough scope for a profitable oil-pressing industry in various parts of India if it is carried on on right principles?—Yes.

51,491. Do you think there is such scope without any protection from Government, or do you think that protection is required?—Protection is required.

51,492. What sort of protection do you want?—Some sort of embargo, or duty, on the exportation of oilseeds.

51,493. You do not want an import duty in linseed oil or any such thing?—It would be well to have a duty on the export of oilseeds, because we are in a position to manufacture oils which are cheaper than imported linseed oil.

51,494. Why I am asking you about this is because in another Province an inquiry was made by an officer of Government, Dr. Lander,* and we were told that, in his opinion, some sort of protection was necessary for the oil-pressing industry?—As far as my knowledge goes, I do not think that there is any necessity for it.

51,495. There are other oil mills in the Bombay Presidency, nearer Bombay, which we were told have failed. Do you know anything about them?—There are many.

51,496. If such oil-pressing concerns, started with joint stock capital, failed, would you give us an idea why they failed?—Perhaps they started at a wrong place, where there was not enough raw material or where the labour cost was high, or where possibly other conditions were not favourable.

51,497. Or they must have spent their share capital on objects on which they could have economised?—Yes.

51,498. So, it was not the fault of the industry itself, but it was the fault of the management?—Yes.

51,499. Do you think that the Local Government could do anything to stimulate this industry in different parts of the Presidency, and, if so, what form of assistance could they give?—As far as the oil-pressing industry is concerned, I do not think Government can do anything in the matter.

51,500. Can the Local Government give technical advice as to the kind of machinery and the location of a site for the oil mill?—Government officers can give technical advice as regards machinery, but as regards the location of the site and other commercial considerations they would not be able to help.

51,501. Has the Director of Industries in Bombay considered the question of the oil-pressing industry in this Province?—Yes; he wrote to me once or twice about it.

51,502. What has been the upshot of the inquiry made by Government as regards the starting of an oil-pressing factory?—As far as I know, they wanted to start an experimental oil mill in my place. They wanted to put up a rotary mill, but I wrote to them that it would not be a success.

51,503. Would the rotary mills, called *ghanies*, pay? Would they be a success in small places?—It depends upon the commercial possibilities of the place whether there is a demand for the product and so on.

51,504. You mean the economic factors?—Yes.

51,505. Have you ever considered the question of making bye-products from your oil, such as soaps, paints and varnishes?—I have been making paints and varnishes.

51,506. That, again, is a small industry which promises, in various Provinces, to be a hopeful one?—There also the point arises whether you have the raw material and a market; the supply of oil is not the most important factor; there are other factors.

51,507. In the case of paint as a bye-product industry, is there any danger of competition from imported articles?—There is.

51,508. That is because the technical skill that is required for making paints and varnishes of the best kind is lacking in this country?—Yes; there are practically no institutions where we can get first class training.

51,509. This Province has no technological institute where the making of paints and varnishes is taught?—There is only one institute, the Victoria Jubilee Technical Institute, but the training given there is not on a scientific and commercial basis.

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* See page 747 in the Punjab Volume.

51,510. There is one at Cawnpore?—Yes.

51,511. Is advantage taken of that Institute by students from this Province?—Yes.

51,512. *Dewan Bahadur Malji*: I find from your note that you are for doing away absolutely with the system of compound interest?—Yes, as far as the agriculturists are concerned.

51,513. Do you not think that under the Deccan Agriculturists' Relief Act compound interest cannot be charged?—It is so; but the *sowcar* does charge it.

51,514. Only when it goes to the court the rule is enforced?—Yes.

51,515. On page 462 of your note you deplore the system of education; you say that there should be an agricultural bias in the education provided? —Yes; that is my view.

51,516. The education which is being imparted to-day has not by any means proved useful?—Yes; that is my view.

51,517. May I know whether oil-crushing is done throughout the year in the factory that you are running?—Yes, it is done throughout the year.

51,518. What are the other factories that you are running side by side with it?—I have got ginning and pressing, paints and varnishes, and manure works.

51,519. Is all done by the same power?—Yes, working alternately. When there is no work in one department, I work the other.

51,520. How many days in the year do you work your oil mill?—I work it throughout the year.

51,521. Have you got any refineries?—There is no necessity of a refinery as far as the oils I manufacture are concerned. Refineries are necessary only for cotton seeds.

51,522. Not for *til* seeds and groundnuts?—It is not necessary for those.

51,523. *Dr. Hyder*: May I ask if you are a hereditary cultivator? Have you got a hereditary connection with the land?—Yes.

51,524. Have your people been for generations connected with land?— For two generations we have been owning land.

51,525. So you have not been connected with land for generations?—I do not say that.

51,526. *Sir Chunilal Mehta*: Is the damping of your groundnut done before decortation or after?—It is done before decortation.

51,527. You find that it is necessary to damp it in some months of the year?—Yes. We get less price if the groundnut is broken.

51,528. What is the breakage?—10 to 15 per cent. if we do not damp it.

51,529. What is the difference in price between the damped nut and the dry nut?—About three rupees; if the usual price is Rs.62 the broken seeds will fetch Rs.3 less.

51,530. Have you any complaints from any of your buyers as to the bad effect of damping?—I have not heard any complaint so far as the groundnut seeds are concerned.

51,531. Is your oil cake sold only in the country, or is it also sent abroad?—Part of it is sold in India, and part of it is sent to Antwerp and Liverpool. I cable to them, and if the prices are good I sell direct to them; otherwise I sell them in Bombay.

51,532. Do you find any difficulty in disposing of your cake?—No.

51,533. There is a big demand?—Quite a big demand.

51,534. Largely from exporters?—Yes.

51,535. Why is your oil cake not being used in this country in larger proportion?—Where could it be used? If there is no wet cultivation or irrigation, there is no use for it.

51,536. The irrigated tracts are buying your manure?—Yes, but the quantity they buy is much less than what the exporters can take.

51,537. Do you know the Malegaon tract?—I know it.

51,538. What is the price there for oil cakes?—It varies from year to year. It is Rs.90 now.

51,539. What used to be the price 10 or 15 years ago?—It was Rs.60.

51,540. And the same applies to farm yard manure, does it not? What is the price of farm yard manure there per cart?—Rs.3 or Rs.4.

51,541. What was the cost formerly?—Formerly it used to be Rs.1 only.

51,542. That shows that there is a very great demand; the prices have jumped up?—Only for farm yard manure.

51,543. Not for oil cake?—Formerly we used to get the seeds cheaper, and we got Rs.60. Now, on the basis of the increased prices we have to pay for the seeds, we ought to get Rs.120 or Rs.150, but we get only Rs.80.

51,544. What sort of cake do you produce?—Groundnut, *karanji*, *kardi*; these are the principal seeds.

51,545. No cotton cake?—None.

51,546. What is the machinery that you are using now? What size is your factory?—I can crush 10 tons of oil seeds, working for 22 hours.

51,547. In order to be a paying concern, the factory has to be of a certain minimum size, has it not?—Yes.

51,548. You must crush 8 or 10 tons in 22 hours?—It depends upon the market for oils and oil cake and the price. If there is a demand we go on increasing our outturn.

51,549. Can oil pressing be an industry in which the cultivator can take an interest?—I do not suppose so; it has got to be done on a factory scale.

51,550. Have you considered if any improvements are possible in the indigenous *ghanis* to make them extract more oil?—Until some better mechanism is introduced, I do not think it is possible.

51,551. Nothing has been done in that direction?—No.

51,552. You know Mr. Upasani?—Yes.

51,553. He went to Europe to study this?—I do not think he went to Europe.

51,554. Not the older man, but the son?—As far as I know, I do not think the son left India. He was in India with Tatas and other firms.

51,555. He published a pamphlet?—Yes.

51,556. Did not that deal with *ghanis*?—Yes, it did.

51,557. He has not been able to do anything?—He has not been able to do anything, as far as I know.

51,558. You say that one of your boys was sent to the Agricultural College. Why did only one choose to go there?—Others preferred to go to the Deccan College. They say they have no liking for agriculture, and they would prefer to go to the Deccan College or some other college.

51,559. Is this boy of yours running his own farm?—No; he has not finished his education yet.

51,560. None of them showed any inclination for a farm, even though you possess 800 acres of land?—No, but one of my brothers has come forward to do that now.

51,561. *Dr. Hyder*: What does the boy at the Agricultural College say?—He is only 17 years old; he is not in a position to express any opinion.

51,562. *Sir Chunilal Mehta*: Have you any fears that he will forsake agriculture later on?—No.

51,563. Have you any agricultural school of the Loni type round about your district?—At Devihosur in the Dharwar district there is one, and we are thinking of starting one school in the Bijapur district.

51,564. Do any of your boys go to the Devihosur school?—It is not conducted on the lines which would induce middle class people to send their boys there.

51,565. Why?—Personally, I have not been there, but there is some sort of prejudice.

51,566. Too much hard work?—They are not afraid of hard work.

51,567. Then what is the difficulty?—They are not getting any higher education at the same time.

51,568. *Dr. Hyder*: If they had higher education, they would want to become lawyers?—I will not give that simultaneously.

51,569. *Sir Chunilal Mehta*: Do you mean that in these agricultural schools there should be teaching of English also?—Yes; it is essential.

51,570. That would attract the boys of agriculturists?—Exactly. What I am doing in my place is that I give to boys of eight or ten years old a small bit of land. I show them how to cultivate it. It does not matter what the results are. Even if they grow one plant, it does not matter. That is how we create a taste for it.

51,571. Are the lands on which you propose to start your new school in Bijapur?—Yes.

51,572. *Dr. Hyder*: Where is your home? In Bijapur, or in some village?—In Bijapur.

51,573. *Sir Chunilal Mehta*: In the town itself?—Yes, and I have got a home at the village where I have this land.

51,574. Do you visit the place very often?—Every year, in the winter months; I go there when the crop is ready. I do not find time to visit it more often.

(The witness withdrew.)

Mr. NARIMAN R. KOTHAWALA, Ahmedabad.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH.—(1) Research is necessary for the advancement of agriculture on a scientific basis. To realise the value of current practices and methods as practised by the cultivators, there should be research stations in as many places as possible for particular objects in view, such as improvements of the cultural methods, introduction of new sources of manures, improvements in seeds and crop returns, &c. Research is very valuable for ascertaining methods of destruction of different bacteria injuring various crops.

QUESTION 2.—AGRICULTURAL EDUCATION.—(i) The supply of teachers and agricultural institutions is altogether insufficient, almost nil, even in elementary education.

(ii) There is great need for some sort of teaching facilities, especially in an agricultural district like Ahmedabad or the Gujarat tract. This tract was once considered to be the garden of India and is still known for its productive soil.

(iii) Yes, teachers must be drawn from the agricultural class for teaching agriculture, men with practical knowledge; those with theoretical knowledge only are not useful for promoting rural welfare.

(iv) There are few institutions and the attendance is very small. To cope with an agricultural district like Ahmedabad there should be one Government farm in each taluka, with a good establishment complete with all the latest and most advanced agricultural implements for practical demonstrations. This is a most urgent and necessary step if Government wish to improve and advance agriculture, as the farmers generally are illiterate and there is no possibility of the adult cultivator gaining any knowledge without these demonstrations. There is great necessity for nature study, which boys know little about.

(vi) Very few pupils are drawn from the agricultural classes.

(viii) India being an agricultural country, there is great necessity of attaching farms to schools, even on a small scale.

(ix) They seek advice.

(x) By giving agricultural knowledge in schools and colleges, encouraging a taste for the profession by starting as many farms as possible, with practical demonstrations and holding as many shows as possible even if sufficient funds are not forthcoming from the public.

(xii) By practical demonstration in modern agricultural machinery on farms in each taluka.

(xiii)—(*a*) Village schools should be established within easy reach of two or three villages, with small farms attached to them where theoretical and practical instruction in agriculture could be given under the agricultural Inspector of the district.

(*b*) The local fund, which is at present not utilised as it ought to be on the villages which subscribe towards it, should be increased to 5 pice instead of 4, and it should be reserved entirely for schools, village cart-roads and wells of those particular villages. Government should also contribute generously, as it does to city schools and other institutions, and these schools should be brought under the charge of the Agricultural Department.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) Measures taken up till now are quite inadequate and I do not know as yet of any such improvements made in Ahmedabad district.

(*b*) There should be a Government farm for each taluka where local conditions could be studied and practical demonstrations made.

(*c*) There should be education. When the cultivators' minds are developed by theoretical and practical education they will of their own accord seek expert advice as they will then be able to know what is best for them. Parties of cultivators should be brought over to taluka farms and made to take an interest in agricultural demonstrations.

(*d*) The cultivators have no education and they require a new change to be pressed into their heads by practical demonstrations. Some years ago I wanted to introduce iron ploughs in my farms; the cultivators would have nothing to do with them, but I forced my unwilling servants to go on with them, and within a year they found the work of the iron ploughs to be excellent and the crop outturn was also far better than what was realised when they were using the Indian wooden ploughs. Now, all my cultivators have taken to iron ploughs, so much so that they cannot do without them. I have now been using these ploughs for the last 12 years.

QUESTION 4.—ADMINISTRATION.—(*c*) (i) The Agricultural Service is quite insufficient, and there is great necessity of increasing the staff for practical training, demonstrations of improved methods and implements at Government farms, and for touring work. There is also necessity of increasing the Veterinary Service.

(ii) Railways should give facilities to cultivators by reducing the fares and goods freights, especially to villages near big towns. Instead of that the railway companies are charging a very heavy minimum charge per wagon (exclusive of other hindrances and expenses connected with railway traffic), and this charge is very high as compared with carting by bullocks.

(iii) The cultivators suffer greatly from very bad road communications from one village to another, and it is simply impossible during the monsoon to have any traffic of any sort except by trudging knee deep in mud and water. The cultivators pay a local fund cess, but hardly anything is spent from it on repairing the village roads. The local fund raised from villages should be entirely used for repairing roads, wells, and attending to other necessities of those villages only.

(v) The postal service in villages is inadequate. Every village should have better service than at present.

QUESTION 5.—FINANCE.—(*a*) Agricultural banks, with enough funds to lend to the cultivators on long terms and with the least delay possible, should be started.

(*b*) The procedure for receiving *taccavi* is very lengthy and very troublesome. The cultivator, being ignorant, always applies at the last moment, and it often happens that, before sanctioning the *taccavi*, lengthy inquiries are made as to his situation, and, in fact, before he receives the amount his opportunities are lost. There should therefore be some short procedure in ascertaining his position and the *taccavi* should be paid as soon as possible through some special banking (agricultural) facilities. The rate of interest also of *taccavi* is very high, almost as much as that of a *bania*; it should be reduced to induce the cultivator to take the *taccavi*. The instalments of payment should be long and many.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(*a*) (1) Lack of education is the root cause of borrowing and the consequent poverty of the cultivators. Other causes are: necessities of life and agricultural needs after bad years, wasting money compulsorily on marriages and deaths, caste dinners (whether the year may be prosperous or not).

(ii) Village *banias*, co-operative credit societies and *taccavi*.

(iii) Erratic monsoons and consecutive bad years, want of Government irrigation canals, which are the chief source of prosperity of the cultivators.

(*b*) Agricultural banks at reduced interest should be started, and all possible facilities, such as irrigation canals, drainage, &c., should be given. Although there is the Deccan Agriculturists Relief Act, it still takes a long time to redeem land, so something must be done to shorten the procedure by legislation. I do not think it is necessary to enforce the application of the Usurious Loans Act.

(*c*) No. Measures should not be taken to restrict or control the credit of cultivator. It will put him in great difficulty. A village *bania* under these circumstances is a great support to him. If any restriction were put on mortgage or sale the value of land would deteriorate and the cultivators would be worse off. For example, those who have got land on new tenure are in worse plight than those who have got lands on old tenure. If the Government desires to save the cultivators from mortgaging or selling their lands to so-called usurers, agricultural banks should be opened with reduced rates of interest. This is the only remedy, and nobody will have cause then to go to *banias* and other moneylenders. The banks could give money up

to a fixed percentage on the value of the land (fixed previously). Enacting strict laws against borrowing, selling or mortgaging lands would harm rather than help the cultivators.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) The excessive sub-division of holdings is very detrimental to agricultural efficiency. A lot of labour is wasted, for the cultivator has to move from one place to another with cattle, implements, &c., and moreover he cannot concentrate his attention and energy when required.

This may be remedied by mutual co-operation. Government should come to the aid of the ryot by buying up the portions and attaching them to the main purchaser and by affording him facilities to pay off the amount at convenient and long-term instalments. Secondly, I may suggest that the survey numbers comprising a holding should be of a certain fixed minimum area, which must never be sub-divided.

(*b*) The owner may not like to part with his portion of land nor the purchaser be in a position to take it. These obstacles may be overcome by the measure suggested under (*a*).

QUESTION 8.—IRRIGATION.—(*a*) (i) There is an urgent necessity for a big irrigation canal scheme for perennial irrigation in North Gujarat, that is in the Ahmedabad District. This part of the Bombay Presidency, although a very important agricultural district, is suffering from years of scarcity of rains frequently, and, especially when the later rains fail, the cultivators suffer heavy losses in various crops, and these heavy losses should be taken into consideration by the Government. The cultivators spend money on their cultivation, seeds, sowing, weeding, &c., and often, at the last minute, they have the disappointment of seeing all their hopes of good crops blasted, simply for want of the later rains in the month of September, which are most essential.

Some thirty years ago a big scheme for perennial irrigation in North Gujarat was promulgated, a survey was made and all other arrangements completed. Roughly speaking, a big dam was to be built in the hills in the North of Ahmedabad District near the source of the Sabarmati River, whose billions of tons of water, during floods, flows to waste into the sea. The water of this river could well be utilised for perennial irrigation in North Gujarat by that projected scheme, which would be a blessing to the cultivators of Gujarat.

This Sabarmati irrigation scheme was to have been put in force during the year following the harrowing famine of 1899-1900, when the rains had delayed till the 28th of July, 1901. Then the eagerly sought for rain came at last, and the idea of putting that irrigation scheme in force was postponed, *sine die*. When this scheme was surveyed and estimated, the area of land that was to have come under irrigation was calculated as much less than it ought to have been. This was due to the ignorance of the cultivators, who replied to the inquiries wrongly and without understanding the benefits of an irrigation scheme that would have proved a blessing to them. Again, there was a lot of waste land on the surveyed course of the canal which was not estimated for irrigation. The water of that projected scheme would have run above the ground level from the village of Sarkhej, which is six miles from Ahmedabad City.

Vast areas of good cultivable land are now available if this beneficial scheme is put into force by the Government. It would be a blessing to the province of Gujarat, and I may be permitted to say that Government unnecessarily lacks confidence about this much-needed perennial irrigation scheme for North Gujarat. It has still not realised fully the benefits and vital importance of such a scheme to the cultivators, who, unfortunately,

are very backward in putting forward their real grievances, on account of their utter illiteracy. North Gujarat is subject to scarcity of rainfalls very frequently.

(*b*) Wastage of water could be prevented by *pucca* canals, which would be very costly. To minimise wastage of water in *katcha* canals, absorption could be prevented to some extent by filling up the bottom of the canal with clay soil or heavy sticky mud from the tank beds and from other places.

As for preventing evaporation, brushwood or trees should be grown on the sides of the canal; this would cause less evaporation on account of the shade and checking, to some extent, of dry winds blowing over the canal.

(ii) Tanks and ponds are now not of much use as they generally get dried up in years of scarcity of rains, when water is most needed. Unless there are heavy rains they do not fill up in the level plains of Gujarat.

(iii) Wells are all found very useful, especially during famine years, but they also now dry up when there are consecutive years of short rains.

Obstacles.—There would be no obstacles if the Government sanctioned the irrigation scheme and put it into force. Take it for granted that the scheme is not paying. Government should not look to such profits when the vital interest of the poor cultivators are concerned. It should realise how much money the cultivators lose (and thereby the Government loses also) so frequently on account of light crops, or no crops at all in years of scarcity and famine.

QUESTION 9.—SOILS.—(*a*) (i) There is great necessity of drainage in the low lying parts of the district. Rainfalls are very irregular here. Sometimes it rains continuously in torrents, damaging the crops, and that does not give time for interculturing, hardens the soil and makes it unfriable. The harmful salts, instead of being washed away, are collected from year to year, causing the land to deteriorate and making it troublesome for cultivation. The outturns of crops also become less as the crops dry up soon. I have a village in Sanand taluka through which a big drainage scheme was cut during the severe famine of the year 1900, to do away with the surplus rain water which inundated the land of several villages. This drainage has improved that land to a great extent, increasing the produce of the cultivators.

(iii) The erosion of the surface soil by flood water could be prevented by constructing *kutcha bunds* on the land and checking the rapidity of the flow of water.

(*b*) (i) Several plots of land on the banks of the Sabarmati River become *bhata*, temporarily, as the river deposits silt during floods.

(ii) In the villages of Fateywady and Vanjar, in South Daskroi taluka in Ahmedabad District much land is spoilt by sand and surface erosion, so much so that every year some survey numbers are actually washed away by floods. Up till now nothing has been done to prevent this damage. In the Sabarmati River whenever the floods reach the height of 18 feet marked at the Ellis Bridge Ahmedabad, it passes over the west embankment at Fateywady, cutting it in some places. The rapid flow of the flood water throws sand and removes the useful upper surface of the soil. In some parts where the water remains stagnant it deposits some silt and improves the land a little.

QUESTION 10.—FERTILISERS.—(*a*) Use could be profitably made of natural manures and there is also necessity of artificial manures too. Dung should not be allowed to be made into cakes and used for fuel. It could be well utilised as manure by collecting it under shade in the owners' fields.

(*c*) By demonstrations and propaganda. There ought to be Government farms in each taluka, and there artificial fertilisers should be used and proper instructions should be given on selected experimental plots.

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(*f*) Cultivators should not be allowed to make dung cakes in the villages but it should be compulsory to take the dung and other refuse to the fields. The Sanitary Department could order the prevention of refuse heaps being made in the villages. If necessary, legislation should be enacted.

QUESTION 11.—CROPS.—(*a*) (i) Proper use of manures and deep cultivation by iron ploughs would go a great deal for the improvement of the existing crops.

By perennial irrigation canal schemes sugarcane and cotton crops could be improved to a great extent. No permanent improvement can be made without perennial irrigation canals.

(ii) Growing of vegetables near big towns; guinea grass should be introduced as a fodder crop as much as possible.

(iii) Selection of good seed play an important part in advancing agriculture. There must be big seed depots at Government taluka farms (to be established) as progress in this line will not be easy without good selected seeds.

(iv) Gun licenses should be given more freely to cultivators; arrangements should be made to supply them with barbed wire at reduced prices as they are very poor and have no spare money to spend on such protections against wild animals.

Very great damage is done at night by wild animals, such as wild boar, deer, jackals, blue bulls, &c. (leaving aside the worse nuisance of cattle belonging to Rabaries, let loose purposely at night time). Damage is also done by *juari* birds, sparrows, *sarus* and other birds, to crops during the day time.

(*b*) All crops, chiefly cotton, improve a great deal by irrigation after the rainy season is over, if the crop is young and the fields well manured.

QUESTION 12.—CULTIVATION.—(i) At present cultivation is generally done by wooden ploughs, even in deep good soil where good ploughing is necessary. This could only be remedied by substituting different suitable varieties of iron ploughs.

(ii) As far as possible mixed crops of as many varieties as possible should be put as *kharif* crop, so that some, at least, of the crops may stand the irregularities of the Indian rainy season. If the rains are short the crops requiring little rain might thrive and if the rains incessant and heavy the crops which can stand heavy rains may not be destroyed.

The cultivators understand the rotation of crops for their practical purposes.

QUESTION 13.—CROP PROTECTION, INTERNAL AND EXTERNAL.—(i) Unfortunately the cultivators do not understand the importance of protection of crops from external infection, pests and diseases, and no adequate measures are taken to train cultivators to protect their crops from such pests. They are so illiterate and so imbued with old ideas that it is not an easy task to make them understand the benefits of such preventive measures.

(ii) Yes; there is a great desirability of adopting internal measures against infection.

QUESTION 14.—IMPLEMENTS.—(*a*) Instead of improving the existing wooden ploughs and other implements, it is much better and easier to introduce the latest modern types.

(*b*) Practical demonstrations of implements, modern agricultural machinery and their use, should be made on specially selected Government farms in as many places as possible.

(*c*) There may be some difficulties in the way of manufacturers of agricultural implements and machinery but those could easily be remedied and satisfactory sale secured if the manufacturers gave free demonstrations in

different villages and kept their depots within easy reach of the cultivators at the manufacturers' own expense. They must also reduce the very high prices of their implements and machinery, for then alone will they be able to command a better demand from the rural population of India.

Railways also should give special rates for agricultural implements.

QUESTION 15.—VETERINARY.—(*a*) If the interest of the agriculturists is to be considered mainly, it is better to put the Civil Veterinary Department under the Agricultural Department.

(*b*) (i and ii) Yes, the dispensaries are under the control of Local Boards. This system cannot work well. It would be better to put them directly under the Veterinary Department or the Agricultural Department, as the District Local Boards have hardly any idea of the necessities of veterinary help.

(iii) Yes, I would advocate the transfer of control to provincial authority.

(*c*) The agriculturists do not make much use of the dispensaries as they are not within easy reach of villages, except for some surgical treatment to their animals, such as cancer of the horn, tumour, &c.

(*d*) It is very difficult to deal with contagious diseases as the owners never segregate their animals, neither does anyone inform the authorities about the diseases prevailing and no proper register of deaths and contagious diseases is kept by the village authorities. Legislation would do some good but there would be great hardship for the owners of cattle and at the same time it would be very difficult for the authorities to control such matters so long as the cultivators are illiterate and so long as their present impoverished condition does not change for the better. Under any circumstances inoculation is necessary. The village officials should record, and inform the authorities about, the prevalence of contagious diseases so that help could be given in time by the Veterinary Department.

(*e*) Diseases are raging frequently in many places but there is hardly any demand for professional help or serum.

(*f*) People are very ignorant about the efficacy of inoculation. They have little faith in such matters and are inert and they would prefer to take any absurd charm remedy that does not cost them much trouble or money. No fees are charged for inoculation, as far as I know. Complete ignorance of the cultivators about inoculation and scientific remedies is the main obstacle in the way of popularising preventive inoculation.

There is great necessity for touring dispensaries, which would be very valuable for villages which are far away from big towns.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) (i) There is great necessity for improving the livestock both of draught and milch cattle. It is very difficult to improve breeds of cattle in this country as compared with other countries like Europe and America, for several reasons.

Almost all Hindus, except low caste Hindus, never get their young male calves castrated. Well-to-do people and the *Mahajan* let loose their male calves after marking them, so that nobody can castrate those cattle. In this way, whether the cattle are bad, useless, or old, they are never destroyed, and they come in the way of good young cattle by sharing their food and spoiling the breeds, &c.

There is very little demand for cows, and it is very difficult for the owners to dispose of them. Cattle-breeding in this country does not pay, as there is no encouragement to promote the industry.

I have been doing cattle-breeding for the last 33 years, rearing and selling young animals, but I have found it to be a very discouraging industry. It paid a little as long as there was a foreign demand and when fodder and pasture were very cheap. How can it pay any breeder when at the most he can get, on an average, Rs.125 for a good bullock after training and feeding

him for four years. Only when there is demand from foreign markets or when the local prices increase will the breeders be encouraged to take trouble and spend money on rearing good cattle. The prices realised locally at present are very discouraging.

The demand from foreign markets had encouraged breeding to some extent for a short time. At present, the breeders of Gujarat and Kankrej cattle are the roaming tribe of Mahommedan Sindhis, who go from place to place on the waste plains of the borders of East Cutch, North Gujarat and East Marwar.

Breeding pays them better, as they are Mahommedans. They are able to dispose of their useless cattle (those of very old age, sterile and inferior in quality). No breeder of any other community is in a position to discard and sell his cattle in the way these Sindhis do, by giving them to butchers. Other breeders have the disadvantage of having to keep such useless cattle in their herd or they have to send them to the *Mahajan.*

(ii) It is necessary to improve the dairy industry. At present cattle, cows and buffaloes have much less milk as compared with their number. Stall-feeding will increase the quantity and improve the quality of the breed.

As much attention as possible in breeding milch cattle, both cows and buffaloes, especially the latter, should be given by the authorities, as it forms one of the subsidiary industries of the agriculturists.

(*b*) Over-stocking of common pastures is the chief cause of spreading infectious diseases among cattle, and moreover the useless cattle share the grazing with the superior cattle, by which the latter suffers on account of insufficient grazing.

(ii) Due to the absence of enclosed pastures, the owners are obliged to send their cattle to the common pastures, where their cattle are more liable to infectious diseases and get very little grazing.

(iii) As a matter of fact, there is no insufficiency of dry or green fodder in ordinary good years. Moreover, grass and fodder are not cared for and conserved at the proper time. When there is insufficiency of fodder the cattle are more subject to diseases.

(iv) There is great absence of green fodder in the dry season. The cattle get emaciated and too weak for work; the quantity of milk also gets less or dries up altogether. Even in the beginning of the monsoon, cattle of poor cultivators are not in a fit condition to do any work as they have no means of keeping them fit by giving corn or other food. Green grass is a great necessity in Gujarat. The silo could supply that, but it is very difficult to impress upon them the advantage of it, and they will not take to it easily.

(v) Salt is a necessity for cattle. Ordinary salt could replace the absence of the mineral constituents which are essential in fodder. Without salt cattle do not relish grass and are not able to digest food, and they naturally become thin, unfit for work and liable to catch diseases.

In the Punjab, where there are perennial irrigation canals, cattle do not deteriorate even in summer time, as they get green grass in addition to fodder, straw of cereals or the stems and leaves of pulses, all through the year. The milk yield of the cows does not get lessened much.

(*c*) Fodder shortage is generally felt in the latter part of summer, that is, from the middle of April and mostly in the month of June, and when the rains are delayed. It much depends on the advent of the rains. The young growing cattle thrive after the rains are over, according to their conditions. They generally come in condition a month after they begin to feed on fresh green grass.

(*d*) There is enough of fodder during good monsoon years, and it depends on conserving it properly. Silage making would be advantageous, but it is not done.

(*e*) On account of irregular monsoons and consecutive bad years, land owners and agriculturists get dejected, and something must be done by the

Government to remedy this. The only way for this part of Gujarat is the perennial irrigation canal scheme, which could be put in force if Government so desired. A big irrigation canal scheme for Gujarat was promulgated, as I have said before, and that could now be brought into force. It would be a blessing to the agriculturists of Gujarat.

QUESTION 18.—AGRICULTURAL LABOUR.—(*a*) (*b*) and (*c*) If Government wishes to attract cultivators to areas of land lying waste it will have to give them all sorts of help by giving loans for building houses and for purchasing other necessities of agriculture. The causes of shortage of labour in this part of the country are chiefly the big industrial towns in this district, especially Ahmedabad, where there are many factories. And when once the labouring class of people have seen the attractions and comforts of city life, they do not like to revert to their village life, which is very wretched during the monsoon, full of stinging flies during the day time and unimaginable mosquito bites during the night.

QUESTION 22.—CO-OPERATION.—(*a*) Government should put at the disposal of the co-operative credit societies enough funds to meet the demands of the cultivators, and it should instruct the societies to lend them money up to a certain percentage of the value of the land (of course mortgaging it) fixed previously, according to the worth of the land, by *mamlatdars* of all the villages of the taluka.

The cultivators then have only to present certificates of the authority to the credit societies or the bank, and they should get the money within a short fixed time after application. Such societies must be very particular in selecting good honest servants, otherwise they would upset the good name of the Government.

People hardly understand the principle of co-operation, and they also fail to understand their duty and responsibility. The rules of the credit societies are somewhat rigid, and the cultivators find it very difficult to return the loans within the prescribed period. Government should also help the movement by giving substantial contributions at very easy rates of interest to the central banking institutions of the movement.

(*b*) (iv) If such societies are formed, they are sure to achieve good results in the long run.

(viii) It would be difficult to start cattle-breeding societies which would do their work successfully under the present circumstances. Even now cattle-breeding done by private well-to-do owners does not pay.

(*c*) I think that, if legislation were introduced, it might help in that direction.

QUESTION 23.—GENERAL EDUCATION.—(*a*) (i) (ii) and (iii) Courses in agricultural subjects and lessons in nature study should be introduced in elementary and middle schools, with applied mechanical and agricultural knowledge. In higher or collegiate education, advanced mechanical subjects pertaining to agriculture should be introduced and demonstrations in modern agricultural machinery should be made.

(*b*) (i) Rural education may improve the ability and culture of agriculturists of all grades, while retaining their interests in the land, if the environments of life in the villages are improved and advanced by making good roads, &c. The dullness, unhappiness and great inconveniences of village life must be removed, and it should be enlivened to suit a developed mind.

Advanced and educated agriculturists are unable to retain their interest in the land here, as there are such great irregularities of the monsoons in North Gujarat; to remove this there is great necessity of an irrigation canal scheme. It will mean some certainty of good results in the profession of agriculture.

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(ii) There should be free compulsory education in rural areas; it will, in the long run, improve the present state of affairs. But there is so much of poverty that everybody, whether young or old, has to work in the fields, and that is the reason why the youngsters are not able to go to school.

(iii) The small proportion of boys in rural primary schools is due to poverty and ignorance of the value of education.

QUESTION 24.—ATTRACTING CAPITAL.—(*a*) and (*b*) The chief step necessary to induce a larger number of men of capital and enterprise to take to agriculture is the removing of the great uncertainty caused by irregular monsoons in North Gujarat by putting into force the irrigation canal scheme.

Absence of such an irrigation canal is also the main factor tending to discourage owners of agricultural land from carrying out improvements. By the following steps a larger number of men of capital and enterprise may be induced to take to agriculture:—

(1) Putting the profession of agriculture on a more reliable basis by enabling it to withstand the freaks of monsoon

(2) By holding agricultural shows, demonstrations and by other propaganda for creating a taste for agriculture.

(3) By removing the filthy conditions in villages and making them hygienic enough for habitation by people of advanced ideas.

(4) By connecting villages and towns by roads good enough for pedestrians and all wheeled traffic to go about during the monsoon.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(*a*) The Sanitary Department should be more efficient and schools should be established in important villages with free admission. For the general well-being and prosperity of the rural population, poverty must be removed by some means. This could only be done, as I have said before, by putting into force the Sabarmati irrigation canal scheme, extending other irrigation schemes already existing, opening agricultural banks with reduced rates of interest and long, easy instalments, and introducing free compulsory education by establishing schools in as many places as possible. This is by no means an easy task, but, as far as I can say, these measures alone will improve the poverty and the bad state of affairs that are now existing in Indian villages.

(*b*) Thorough investigations into economic conditions and hygiene should be made in all villages of the district. A committee for each taluka, under a non-official person having a thorough knowledge of the local conditions and agriculture, should be constituted for investigation.

QUESTION 26.—STATISTICS.—(*a*) (i) At present, ascertaining areas under cultivation and crops is not done satisfactorily. It must be done by a village committee formed of a *talati*, *mukhi* (head man or *patel* of a village) and some other leading agriculturists.

(ii) It is very essential to estimate the yield of agricultural produce properly. It is being done in a haphazard way by the revenue authorities, who have hardly any knowledge of agriculture. It should be done by the village *panch*, including two or three leading cultivators of the village, a subordinate revenue officer, and at their head the Agricultural Inspector of the district.

Annawari estimate is done only in bad years when the question of suspension and revision arises. It should be made on the standard fixed by the Government.

(iii) In this Presidency a census is being taken every five years. But sometimes the period is increased and a census taken after seven or eight years. The census should be taken every five years.

(iv) Land must be given by the Government to occupants on old tenure only and not on new tenure. Government should make a permanent revenue

settlement. As far as possible, there should be less restriction by the Government on lands given to the occupants.

Except for the assessment to be paid to the Government, the proprietors should be considered to be the sole owners of the land for agricultural purposes.

(v) They are not being published in a convenient and handy form and the general public finds it almost impossible to get these statistics.

(b) An economic survey of the rural population should be prepared. At present no one even knows the average income of a cultivator. Unless we know the economic condition of the people we cannot establish an equitable and scientific system of taxation.

THE SOUTH DASKROI TALUKA DEVELOPMENT ASSOCIATION, AHMEDABAD.

Replies to the Questionnaire.

(Submitted by Mr. Nariman K. Kothawala in his capacity as President of the Association.)

QUESTION 1.—RESEARCH.—The agricultural methods which are most suited to Indian soils and climatic conditions are those which are based on ancestral knowledge and are handed down in the form of sayings and precepts from father to son. However, there is ample scope for improved methods of farming by way of organising at least one model farm in each taluka, where all local crops may be grown and improved upon. Some new crops may also be tried, and if found economically successful they should well be demonstrated.

2. (ii) The breeding of live stock as cows and buffaloes, stud bulls of a reliable pedigree should be provided for in each village, and the undesirables should be eliminated by law, by sending them to *pinjrapoles* or any other institution of a like kind.

(*b*) Skilled labour for agriculture should be well taught from the beginning, that is to say, in primary schools there ought to be courses whereby the agricultural school-going boy may learn with advantage.

(*c*) Owing to want of rains in the South Daskroi taluka villages, the waters in wells ponds and canals, etc., are getting less every year, and at some places they have gone permanently dry. No practical, effective measures have yet been taken by the Government to remedy the evils.

QUESTION 2.—AGRICULTURAL EDUCATION.—In India, 80 per cent of the total population depends on agriculture, and hence all possible efforts should be made for the improvement of agriculture. The root remedy is "Better Education." Agriculture should be taught as a principal subject in all primary schools, and there should be small plots attached to each school for imparting practical training in agriculture.

(i) There are not sufficient schoolmasters qualified to teach agricultural subjects.

(ii) As Gujarat is the most prominent agricultural district in the Bombay Presidency, it needs an Agricultural College at a convenient place.

(iii) In village schools, selection of masters should invariably be made from the cultivating classes of people.

(iv) There is insufficiency of schools in view of the present-day requirements, and in certain villages there are no schools at all. It is due to want of Government aid. If the cultivators could get good education the cause of agriculture would naturally improve.

(v) If the teachers and the taught are convinced that by acquiring agricultural knowledge they would get comparatively much more reward,

then and then only the cause of agriculture would prosper. The agricultural knowledge imparted in schools and colleges must be of a very high order.

(vi) There is no such rule.

(vii) More importance should be given to agricultural subjects in the village schools, i.e., the principal subject must be agricultural science.

(viii) (*a*) More attention should be paid to money crops in vernacular school plots and the boys should be made to do practical work on them. The minimum acreage of such plots should be not less than 5 acres. The management should rest with the Agricultural Department.

(ix) The majority of persons nowadays who have received agricultural knowledge depend on Government service.

(x) If real and profitable agricultural knowledge were imparted the state of agriculture would naturally improve.

(xi) There is only one institution in this district where technical knowledge is imparted, and there is need for more of them.

(xii) Night schools for adult education should be opened in villages.

Please refer to answers given in paragraphs 7 and 8.

QUESTION 4.—ADMINISTRATION.—The Governor of each Presidency should be empowered to administer agriculture in co-ordination with Local Governments.

QUESTION 5.—FINANCE.—(*a*) It should be so arranged that the cultivators should get money on easy instalments and that, too, without interest.

(*b*) A better use of *taccavi* can be made in case it is given direct with less interest.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—Agricultural indebtedness is due to poverty of the cultivators, the vagaries of the rains and the insufficiency of agricultural requirements.

(ii) Money can be had by the mortgages and sale of lands.

(iii) The reason preventing repayment is failures of the crops.

(*b*) The indebtedness can be lessened by Government providing the cultivators with money on reasonable rates of interest.

(*c*) There should be limitations to permanent mortgages and the land tenures should be permanent. There is no other necessity.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—(*a*) The minimum acreage should be fixed by law in order to save the land from further divisions, and the smaller divisions of land should be made into one desired lot.

(*b*) The hereditary right of partition comes in the way of consolidation of holdings, and the bulk of the agricultural population depends on agriculture alone. These are real obstacles.

(*c*) The law should be so framed as to prevent the right of cultivating land from going permanently, on account of debt, etc., into the hands of others, and the rent should be fixed at double the assessment.

QUESTION 8.—IRRIGATION.—(*a*) There is insufficiency of water for irrigation in the *khari-cut* in the villages of the South Daskroi taluka. The paddy crop has failed for the last four or five years. The system of giving water to cultivators of the Kaira district through "sluice," and the Daskroi cultivators through "cut," should be so arranged that by putting a *bund* across the Meshvo River there would be a sufficient water supply for the cultivators of the Kaira district, and there would be no complaint of lack of water from the villages of South Daskroi taluka. There is a necessity for such an arrangement to be made. Some time ago it was decided by the Irrigation Commission that by putting a *bund* across the river Sabarmati the water could be stored and canals made for giving irrigation to adjoining villages. These facts should be given due consideration.

(ii) For the most part, the field ponds have been filled in by siltage and are not properly kept up. This should be done, and the revenue collected as *himayat* should be spent absolutely for this purpose. The revenue received as *himayat* of a particular village need not be transferred to some other purpose to other places.

(iii) Due to want of rains, the sub-soil water currents have gone very deep, and at some places the wells have become totally dried up. Boring work should be benevolently carried on to remedy the evil. The management of irrigation should, as a matter of fact, rest with the Agricultural Department; and the money needed by the cultivators for boring operations should be paid from the grant of "Water Loan."

(*b*) The present system of irrigation is quite unsatisfactory, as the cultivators do not get sufficient water in time. There is no proper system of giving water at the tail-end on this side. There would be less wastage of water if small field channels were made and water given.

QUESTION 10.—MANURES.—(*a*) Now-a-days there is insufficiency of natural manure, and the cultivators cannot afford to pay for the artificial manures. They are also ignorant of how to use the same with advantage.

(*f*) The supply of farmyard manure can be increased by allowing cultivators to get fuel from the waste lands; that is to say, Government need not auction the trees growing in the waste-lands.

QUESTION 11.—CROPS.—(*a*) (1) There should be a change to profitable crops in the present system of cultivation.

(iv) The cultivators should be exempted from the operation of the Arms Act, with a view to stop the ravages of wild animals.

QUESTION 15.—VETERINARY.—(*b*) (i) There is no such hospital in the villages of the South Daskroi taluka, and there is a need for the same.

(iii) The control of the veterinary hospitals should lie with the Agricultural Department.

(*c*) These hospitals are maintained from the revenue of Local Boards, and the administration thereof lies with another department, which should not be allowed. The direct administration should be with the Zillah and Taluka Local Boards; this would ensure better work.

(*d*) The cultivators need better information about the spread of contagious diseases, and due measures be taken for the same.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) Male buffaloes and stud bulls of reliable pedigree should be provided in all villages free of cost for rational breeding.

(*b*) (i) and (ii) There should be more waste lands for grazing in all villages.

(iii) There is scarcity of food and fodder.

(iv) As there is a lack of irrigation, the hot-weather crops do not grow well.

(*c*) There is scarcity of grass in the months of April to June. The under-fed cattle require at least two months to regain their normal condition after the rainy season begins if it sets in in time and continues well.

(*d*) There should be grass depots at each taluka headquarters.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—(*a*) The cultivators need some cottage industry for their spare time, of which they have nearly six months in the year.

(*b*) There should be compulsory training for boys in all primary schools in spinning and weaving, so that in after life they can utilise their spare time profitably.

QUESTION 18.—AGRICULTURAL LABOUR.—(*a*) Extra labour in any locality should be well advertised in time, and there should be a law to deal with beggars.

The South Daskroi Taluka Development Association.

(*b*) There is a decided and increasing shortage of labour in this taluka, as there is a very big mill industry in Ahmedabad.

QUESTION 20.—MARKETING.—(*a*) and (*b*) The cultivators do not get the due share of their produce in view of the present system of marketing. There is a sheer necessity for sale societies in order that the middleman may not be in a position to take undue advantage of the ignorance and inability of the cultivators to sell their stuff in the dearest possible market.

(*d*) Agricultural information from foreign countries should be published by the Government.

QUESTION 21.—TARIFFS AND SEA-FREIGHTS.—There will be much dissatisfaction among the people if the exchange value of the rupee is fixed at 18d., and the cultivators will be losers by about 15 to 20 per cent. in their earnings. There will be more loss in the sales and purchases of cotton, and the cotton crop consequently will get a greater set-back in India. Cotton being one of the principal money-crops in India, if it has to suffer a greater loss the poor ryot will suffer the most. As heavy taxes are levied on exports, the market rates of Indian commodities go much below the average rates.

QUESTION 22.—CO-OPERATION.—(*a*) (i) This should be well promulgated by the Government, and the rates of interest should be as low as possible.

(ii) The administration work should lie with men other than Government servants.

(*b*) (i) There should be a change in the system of advancing money to cultivators on the security of their holdings, &c., so that big land-holders may be induced to carry on farming on improved lines which involve more expenditure in buying costly implements, &c.

(ii) Government should try to establish purchasing societies and seed stores at convenient places to help the cultivators in many ways. There are two well-managed credit societies in the South Daskroi taluka, the one at Kasandra and the other at Aslali.

QUESTION 23.—GENERAL EDUCATION.—(*a*) The present-day education tends to alienate the interest of agriculturists to some other avocation, and hence day by day the state of agriculture becomes more alarming. In all primary schools the principal subject should be agriculture, and that, too, should be made compulsory. The same course should be taught in detail in middle schools, and there should be an optional course in agriculture in all colleges.

(*b*) (ii) There is no compulsory education in this taluka.

QUESTION 24.—ATTRACTING CAPITAL.—(*a*) The capitalists and the pioneers of some industries should be encouraged by Government aid, i.e., waste lands on nominal assessment should be given in big lots, with pecuniary help.

(*b*) The most obvious factors that come in the way of profitable farming are the scarcity of money and the illiteracy of the workers. The new tenure should forthwith be abolished because it hinders the general flow of work. There should be at least one Central Farmers' Bank in each district.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(*a*) There should be well maintained and well organised village panchayats in all villages.

(*b*) This should be investigated by the Agricultural Department.

QUESTION 26.—STATISTICS.—This should be done by the leading agriculturists of the village in co-operation with the officials of the Revenue and Agricultural Departments.

51,575. *The Chairman*: Mr. Nariman Kothawala, you have provided us with two notes?—I want to be examined on the first note, and you may casually ask me as regards the other note.

51,576. One in your private capacity, and one in your capacity as President of the South Daskroi Taluka Development Association?—Yes.

51,577. I think the second note is quite clear, but there are one or two points in the first note I want to ask you about. Do you own land?—Yes.

51,578. Could you give us the extent of your holding?—About 6,000 acres.

51,579. Is it dry or irrigated?—It is dry. There are some wells, and I have my own pump.

51,580. Where does the pump draw its water from?—It was put on the Sabarmati river, Ahmedabad, about six miles from Ahmedabad.

51,581. And the engine is on the river bank?—It is on the brink of the river.

51,582. Has it been a success?—Yes. But unfortunately the river has changed its course and shifted more than three-fourths of a mile.

51,583. Has it ever occurred to you that you might keep your pump on a floating barge?—That cannot be done; it is not practicable.

51,584. Why not?—It is a sandy river, and to bring water from that distance would be almost an impossibility.

51,585. The river is too far from your land?—Yes.

51,586. On page 477, in answer to our Question 2 (iv), you are dealing with the question of agricultural education. You suggest that there might be one Government farm in each taluka?—Yes.

51,587. Is that not rather a tall order?—Unless there is a farm in each taluka, how can the cultivator take advantage of it?

51,588. Do you realise that that would mean over 200 farms?—I do not know about that.

51,589. There are 24 districts, and an average of 10 talukas in each district?—Yes, but I meant to say that these cultivators are so very inert that, if there is no farm in each taluka, they may not be able to take advantage of it.

51,590. On page 477, in answer to our Question 3, on Demonstration and Propaganda, you give a very interesting example of the conservatism of the cultivator, and how on your own land they declined to use the iron plough until you forced them to do so?—Yes, I forced them to do so.

51,591. What sort of excuse did they give when you tried to persuade them to use iron ploughs?—They said: "We cannot work with this, it is so very difficult, we cannot manage it," and so on.

51,592. They made a tremendous fuss?—Yes.

51,593. And after they got used to the plough, they took to it?—Yes.

51,594. Have you been pleased with the result?—I am quite satisfied. The results are much better than what we used to get with the wooden ploughs.

51,595. What ploughs are you using?—I use several kinds of ploughs, the ordinary monsoon plough, the big plough, and all sorts of ploughs. I tried Kirloskar's ploughs also, and the ploughs that are manufactured near Poona.

51,596. On page 478, in answer to our Question 5, on Finance, you say "The rate of interest also of *taccavi* is very high, almost as much as that of a *bania*, and therefore it should be reduced to induce the cultivator to take

the *taccavi*." What rate of interest do the *banias* charge in your part of the country?—It depends on the persons.

51,597. What is the average rate which a *bania* charges?—With good cultivators they charge less than 9 per cent. If they are uncertain about them, they may charge them more than 12 per cent.; otherwise about 12 per cent.

51,598. What is the rate of interest on *taccavi* loans at the moment?—A little more than 9 per cent.

Taccavi loans, at the moment, are available at 6½ per cent.

51,599. Would you turn for a moment to Question 8, on page 479, where you refer to the scheme known as the Sabarmati Irrigation Scheme? Have you studied that scheme?—I had gone through it some 25 years back.

51,600. Where did you find the scheme?—It was with the Irrigation Department at Ahmedabad, with the Executive Engineer.

51,601. On what grounds was the scheme turned down?—They thought it was not paying, or something of that sort. It has been kept as a famine work.

51,602. Was it regarded as a protective work, and was dropped as being too expensive?—Yes, because it is a very big scheme.

51,603. You think it would do the district a great deal of good?—Certainly. Every year the crops of many cultivators fail for want of rain, and they have to suffer heavy losses.

51,604. On page 484, in answer to our Question 23, I see that you think that an improvement in the amenities of village life will make a great contribution towards the solution of the problem of keeping cultivators on the land?—Yes.

51,605. Better communications, more facilities for amusement?—Yes.

51,606. Are motor cars coming into use in the countryside that you know best?—A great deal.

51,607. The change is taking place very rapidly?—Yes, only in those villages which are connected with trunk and metalled roads.

51,608 The influence of large centres of population is beginning to be felt more and more every year?—Yes.

51,609. *Sir Chunilal Mehta*: How many iron ploughs have you been using?—About 50.

51,610. Have you found any difficulty in replacing the broken parts?—Not much, because I can get bolts, &c., without much difficulty.

51,611. How long does a ploughshare last?—It depends upon the working. During summer time or in dry soil it gets worn out soon, but in the wet season or in damp soil it lasts longer.

51,612. Has the Agricultural Department in your division tried to introduce iron ploughs?—There is no farm in Ahmedabad, really speaking.

51,613. But surely you have got fieldmen and agricultural officers in the division?—I am using them myself, but I have not asked whether other people are using them elsewhere.

51,614. Have you got into touch with the Deputy Director of Agriculture?—Yes.

51,615. Is he able to give you any assistance?—If I require it, he gives it.

51,616. Would you recommend any legislation to prevent sub-division of holdings?—Yes.

51,617. Do you think people will take to it?—Some may and some may not; it depends on the advantages and disadvantages they may get. If

there is a portion of land which is to be taken up from a neighbour and given to a smaller holder, the smaller holder may like it and the bigger holder may not like it.

51,618. Are you talking of consolidation?—Yes.

51,619. I am talking of sub-divisions. Would you like a law to prevent sub-division below a certain limit?—Yes.

51,620. You have had a great deal of experience of cattle-breeding?—Yes.

51,621. And so long as there was a demand for cattle for export it was a paying business?—Yes.

51,622. But now it does not seem to be so profitable?—No. Still I keep a large number for my own use.

51,623. If compulsory castration can be done, although it is a very difficult thing, do you think that that would go a very great way?—That is the only remedy to get good cattle. The bulls to be used must be certified bulls, and no other bull should be allowed to roam about as is at present done.

51,624. You speak in your note of silage. Have you tried that?—It was tried by my father in Baroda some years back when I was young. I know that silage is a good feed for cattle.

51,625. Why is it not being taken up by the agriculturists?—Because they are so very poor. They do not preserve their own fodder. This is an extra thing to be done.

51,626. You say your father used to do silage?—That was on behalf of the Baroda State.

51,627. Would it not pay you to do it now?—It would benefit my cattle, but I have plenty of fodder myself.

51,628. What fodder are you using?—*Juari, bajri* and hay.

51,629. You get good quality hay on your side?—Yes.

51,630. *Dr. Hyder*: You said in answer to Sir Chunilal that you raised cattle for export. To what country did you export?—I exported cattle to several countries such as Japan, China, Brazil, Europe and the United States of America.

51,631. Was this trade large or small?—Not very large but enough to encourage breeders.

51,632. Those countries bought your cattle because they were good in order to improve their breed?—Yes. Some of the countries bought my cattle for a particular purpose, the others for some other purpose.

51,633. *Sir Chunilal Mehta*: Has the demand fallen off now?—Altogether.

51,634. Why is that?—I do not know, but there is no demand at all.

51,635. Were you exporting Kankrej bulls?—They liked the Gujarat breed better than the Kankrej variety. The Gujarat breed was a mixed breed. Now they ask for the Kathiawar kind.

51,636. *Dr. Hyder*: To what country did you export?—Brazil, some years back, not now.

51,637. *Sir Chunilal Mehta*: Do you think that the Kankrej breed can be made a milking breed?—Not to any extent, but there is a mixture of Gujarat and Kankrej. Those would be good for milking purposes, but they are also suited for draught purposes.

51,638. *Dr. Hyder*: Did you receive any reports from Brazil or the United States of America about the quality of your cattle? Are they efficient?—They are thriving much better there. They can withstand the diseases of that country much better than the European cattle.

51,639. *The Raja of Parlakimedi*: You are mostly interested in agriculture?—I am interested more in agriculture than in cattle-breeding which is a side-business in agriculture.

51,640. When you were carrying on this cattle breeding, what sort of cattle were you breeding?—I used to breed Gujarat and Kankrej varieties.

51,641. What are those breeds noted for?—Kankrej is noted for a particular purpose; they are pure-bred animals, something like Arab horses in the horse class.

51,642. What is the demand in the local market? Is it for a sort of a dual purpose or for any special purpose?—Gujarat is more for dual purpose than Kankrej.

51,643. What is the local demand for?—There is no demand for cattle, except for bullocks.

51,644. Of what type?—Gujarat and Kankrej on our side, but one has to rear the animal for four years after which one can get Rs. 150 per animal. It is a fairly good price.

51,645. For a pair or a single one?—For a single one.

51,646. What kind of demand is there?—We have a local demand for bullocks but not a foreign demand; but the local demand is nothing for breeders. We cannot make any profit out of a bullock that sells for Rs. 150 after four years' rearing.

51,647. In your note on the breeding of livestock you say there should be stud bulls of reliable pedigree in each village. What do you mean by "reliable pedigree"?—I mean pure Kankrej breed.

51,648. Any particular breed?—A bull which has been carefully bred, not a mixture.

51,649. Why do you ask whether it would not be better if the farmer also got some milk from that breed of cattle which would be useful for his cultivation purposes also?—He can get bullocks of the same breed. His aim should be to breed bulls for breeding purposes, not bullocks.

51,650. Would it not be better if the bull carried in him both draught and milk-giving qualities?—Yes, Gujarat is a mixture for draught as well as for milk. Kankrej is purer than Gujarat.

51,651. Later on you say that cattle in India deteriorate because of grazing difficulties. What is the actual difficulty you are confronted with?—That is the reply of the association.

51,652. Do you not represent the association?—I do.

51,653. You state in your note that the breeding of cattle is discouraged because of grazing difficulties. I should like to know what are the difficulties you are faced with?—I do not hold much with this view. Breeders cannot have grazing grounds because Gujarat contains mostly cultivated land, especially the Ahmedabad district.

51,654. What are the grazing rates in force there?—There is hardly any grazing ground attached to a village, except a few acres of land. The charge is about 2 annas per head. Either it is free or, if it is a big plot, they charge about 2 annas per animal per annum.

51,655. There is nothing against a villager keeping a part of his holding for grazing purposes?—He has every right to do so but he will not do it. If he is not able to cultivate it, he leaves it fallow.

51,656. It is his own fault, then, is it not?—Yes.

51,657. You say in your note: "Almost all Hindus except low caste Hindus never get their young male calves castrated" and that they

let these calves loose and spoil the breed. Is this confined to a particular part of India?—I am talking of the Ahmedabad district, and most probably in South and North Daskroi and the whole of the Ahmedabad district they do not get their animals castrated. Even inferior classes of Hindus such as Banias, Thakurs and others do not get their animals castrated.

51,658. Are they backward?—Yes.

51,659. There are other parts of India in which Hinduism prevails. Now everybody realises that there is no harm in having their cattle useful for draught castrated?—Even so, that is a fact, as far as my part of the country is concerned.

51,660. *Dewan Bahadur Malji*: Is it in the neighbourhood of Jain localities?—No, even Thakurs do not castrate their animals.

51,661. *The Raja of Parlakimedi*: Somewhere in your note you make certain suggestions regarding the prevention of the burning of cowdung. Is it not a habit more or less?—They do it from a business point of view. They make dung-cakes and sell them in the bazaar, or they use them themselves for fuel.

51,662. They do it because there is a demand for it and people are habituated to it?—But they cannot equally well do without it; they can use wood fuel, charcoal, &c.

51,663. Would it not raise a tremendous outcry if any legislation were suggested or carried out?—If you do not like legislation, the Sanitary Department can prevent the making of cow-dung cakes in the village proper and they can ask the villagers to store the dung in their own fields, and when it would be farther away from the village they might not care to make cakes out of it.

51,664. Is it from the point of view of sanitation that you suggest this, or because you want to ensure a good supply of manure to the fields?—Both.

51,665. Would it not be better for non-official bodies to go about and educate the people?—It would be a very difficult thing to educate the people.

51,666. Legislation might lead to a good deal of agitation all over the country?—Not from villagers but from other persons.

51,667. You will have to suggest, therefore, some other solutions to meet the problem?—Yes.

51,668. *Dewan Bahadur Malji*: Are you dealing in bulls?—Yes.

51,669. Has the price increased?—Yes.

51,670. How much per cent. above pre-war times?—50 per cent.

51,671. You are using new improved implements?—Yes.

51,672. Was any enquiry made by Messrs. Kirloskar Bros., or any other firms dealing in these things, about your requirements?—I have got some implements from Messrs. Kirloskar Bros.

51,673. Have they answered your purposes well?—Not very well, not as much as the English ones that I have.

51,674. But the soil requires to be examined before these implements are used?—Yes.

51,675. Is there any arrangement for an examination of the soils on your side?—I know what my requirements are and I order suitable implements from different firms.

51,676. Do your neighbours appreciate the use of new, improved implements?—Yes, they sometimes take my implements on loan.

51,677. You are for a demonstration farm in each taluka?—Yes.

51,678. The present policy is to make such demonstrations and propaganda on private fields. Do not you think this is better?—No. If there is a Government farm, people can find out what the results are and profit by it.

51,679. If losses are guaranteed would you welcome this idea?—No. I just want to make a few observations if the Commission will allow me to do so.

The Chairman: Certainly.

On *kiari* (paddy soil) Government charges assessment, irrigation charges and *akashi himayat* (rain water money). When Government gives suspensions, naturally these are given if the crop has failed. In Mr. Anderson's Manual the Collector is authorised to forego rain water money and it would be really hard if rain water money were charged when the crops fail. I say this as the President of the South Daskroi Association.

51,680. *Dewan Bahadur Malji*: Is not that confined to *kalambandi* villages?—I do not think so. The second point is that Khari Cut and Meshwa Cut do not supply sufficient water. When the *kiari* is in need of more water, they run short and they cannot give water. Would it not be better to increase the canal water or to restrict giving water to *kiari* land? The reply must be to increase the canal water, and that is very essential.

(The witness withdrew.)

Mr. J. L. GOHEEN, B.A., Principal, Sangli Industrial and Agricultural School, Sangli, and in charge, Kolhapur Farm School, Kolhapur.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH.—(*c*) There appears to be great need for research, along the line of, (1) suitable fuel and timber-bearing trees for the areas of scanty rainfall. The prices of fuel and timber are very high, so much so that the poor housewife finds that she must use cowdung cakes, there being little, if any, other alternative. Although there is not such a demand for timber for building or for other purposes on the part of the agriculturist, still this demand will increase as conditions of agriculture improve. Therefore, in order to release cow-dung for its proper purposes as stable manure, and in order to have a sufficient supply of good timber for the future, it is highly desirable that research along the line of suitable trees be undertaken. There are a number of varieties of hardy acacia that already exist in the regions of scanty rainfall, but it is quite possible that quicker-maturing varieties of eucalyptus, hardy and suitable for both fuel and timber purposes, might be discovered. The acacia is very slow maturing, although it possesses the quality of hardiness that is required. There may be other kinds of trees available but to the best of my knowledge very little, if any, research work is done on this subject.

(2) Research along the line of poultry diseases needs to be speeded up. The poultry industry has a great future in India, but there are diseases and pests peculiar to the country, and the proper remedies and methods of treating these need to be found, and that on a simple basis such as the villager can finance and employ. It is very desirable that sufficient expert attention be given very soon to this important matter.

QUESTION 2.—AGRICULTURAL EDUCATION.—(i) The supply of teachers and institutions in the Bombay Presidency is hardly sufficient, especially when the more elementary type of agricultural education is considered. The

introduction of the agricultural bias course in the vernacular middle schools is a splendid move, and it appears to be the effort of Government to provide teachers for this course as rapidly as it can. However, there should be more of the strictly agricultural schools of the Loni type, and well qualified teachers for such schools are much needed.

(ii) There may not be an urgent need for schools of the Loni type in each district just now, but it is the belief of the writer that, if such schools were supplied, they would be well attended. These schools would naturally attempt to give training in those problems of agriculture that are peculiar to the district served, as well as in more general agriculture. They would thus make themselves popular by helping both the present and future generations.

(iii) Teachers in rural schools should be drawn from the agricultural classes. Such teachers naturally would have much more in connection with rural life themselves than if drawn from urban conditions, and they would also have more at stake in training their pupils, especially if drawn from the district in which they are teaching. However, it is taken for granted that they should be most carefully selected.

(iv) Attendances at existing institutions, so far as the experience of the writer is concerned, are fairly good. They could be improved if more propaganda was carried on in the rural areas. The advantages of rural life should be visualised, and if prospective students were given an opportunity to visit agricultural schools and see for themselves what such an education means, the results would be very good.

(v) Pupils in the elementary agricultural schools are being drawn largely from the agricultural classes, so far as the experience of the writer is concerned.

(vi) The main incentive which induces lads to study agriculture naturally is a liking for farm life. This, if made attractive, will be the greatest factor in influencing lads to go in for it. Other incentives are, the crowded and unhealthy conditions of cities as compared with rural life, the financial gain in such life, and inherent love for one's own soil and place of birth.

(vii) The use of the "Project" method in teaching agriculture may be employed to very great advantage. These projects, if carried on at the homes of the pupil on land supplied by the parent, will stimulate even greater effort than if carried on at the field of the school. Such, at any rate, has been the experience in America. One's own relatives and friends are likely to become deeply interested in the project and, if it is intelligently supervised, it should prove to be profitable from the financial point of view, as well as from that of mere training and experience.

(viii) Nature study as a help, or introduction, to the study of agriculture, is very valuable. The aid received from birds, the helpful and harmful kinds of insects, and many other features of nature study will help to create a greater interest in, and liking for, agriculture. School plots and farms also may be made very useful. If home projects cannot be carried on, the "Project" method may easily be employed on the school plots or farms. In any case, such plots and farms should exist, and it should always be the aim of the school staff to use them for both training and demonstration purposes.

(x) The development of agricultural clubs for the youth of depressed and middle classes should prove to be very helpful for the interests of agricultural education. These clubs might be developed under the auspices of Rural Scouts, or possibly as separate and independent organisations. The competitive idea may be worked out in them to good advantage, with suitable rewards in the way of visits to agricultural exhibitions, schools or colleges. Such competition will stimulate keen rivalry with a clean sporting spirit in it, while the factors of organisation, office bearing, and business-like conduct, will arouse enthusiasm both for the clubs themselves and for the purposes for which they exist.

Mr. J. L. Goheen.

(xii) Adult education in rural tracts may be popularised through more and better literature of a simple nature dealing with the various phases of agriculture, the use of the steroptican and other methods of visualisation; and the organisation of various kinds of agricultural clubs for the study of agriculture. Those doing or supervising this kind of work should have a spirit of helpful service and should be always keen to stimulate interest in and attention to the possibilities of this kind of education.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(*a*) One of the most effective means of influencing and improving the practice of cultivators is that of concentrating effort on that individual or individuals of any given locality who seems to be most likely to take up the improvements undertaken. "Nothing succeeds so much as success" is very true in one's efforts to spread propaganda, for if the farmers of any given locality see one of their number succeeding by the use of improved methods or practices, they are sure to be influenced. Those chosen for such concentrated effort need not and should not always be the wealthiest, but it is obvious that they should be the most sympathetic and susceptible to suggestions. One such individual may be able to influence the whole neighbourhood in which he lives. He should, of course, be a farmer whose influence is good in the community, and should have a good public spirit. Time and money spent on such a one will prove to be a good investment.

(*b*) The effectiveness of field demonstrations may be increased by holding them on the land of such individuals as have been mentioned above. Let such an individual invite, as his personal guests, only those who are likely to be influenced favourably by what they see. It is quite obvious that the fullest explanation in detail must be given of what is being attempted, and great care must be taken to see that those present are able to understand and appreciate what is being done. If *home projects* have been successfully carried on, they should prove to be most acceptable for demonstration purposes, not only to the young but to their elders as well. It is needless to add that, generally speaking, the simpler and more practical kind of demonstrations are those that will be accepted by the rank and file of the cultivators.

(*c*) If District Agricultural Overseers were organised into an association whose ideals of service were somewhat similar to those of, say, the Servants of India Society, the results would certainly be for the good of the propaganda that they are trying to spread. One occasionally hears the criticism that these men are too concerned about their official position, and that their influence is much weakened thereby. Such an association as is suggested would prove to be of mutual benefit to them, and that in several ways. But its chief benefit would be felt by the cultivator, for the inspiration received would undoubtedly tell in the efforts put forth by the Overseers for the cultivators.

QUESTION 10.—FERTILISERS.—(*a*) Much greater use in this section of the country could and should be made of manures, both natural and artificial, but especially the former. Cultivators need to be taught how to store properly their stable manure, this including the liquid as well as the solid matter. In this section of the country there is urgent need for reform along this line. Then, the matter of the suitable time for applying the manure should be thoroughly investigated, whether this should be done just before planting, or at the time of ploughing, and also the proper manner of applying it. These subjects need to be investigated and the farming public duly informed. Too little manure is stored at the present time, and the method of storing is very faulty, in that practically all of the volatile matter is either not stored, or allowed to escape after it is stored. It is probably not so certain that poor cultivators will take up artificial manures so quickly as they will be ready to heed advice as to the proper

methods of storing and using their own stable manure, and great quantities of this are now lost or wasted because of lack of knowledge.

(*f*) The following methods are suggested for the discouragement of the practice of using cowdung as fuel:—

1. The planting of such quick-growing sources of fuel supply as the castor bean plant; the establishment of "Arbor Days" in the several Provinces for the planting of suitable fuel and timber-bearing trees; training in the conservation of fuel available, e.g., construction of simple but more suitable fireplaces from which much less of heat will be wasted and less fuel will be required for culinary purposes; and a vigorous campaign throughout the country for the spread of information *re* trees, their need and value as sources of fuel, timber, shelter, comfort and a means of help in storing soil moisture.

2. Along with the above a campaign for the advantages of cow-dung as a cheap source of manure, this including a visualized demonstration of such manure as a means of improving the soil structure, of storing moisture in the soil, as well as a source of nutrients for the crops to be grown. Such a campaign, if properly conducted, should do very much for popularizing cowdung as a source of very cheap manure, and the results obtained should mean much for the future of agriculture in India.

QUESTION 11.—CROPS.—(*a*) (i) Existing crops, while doing well under favourable conditions, could undoubtedly be improved by means of training in seed selection, this for drought resistant qualities as well as for the general improvement from the grain and fodder points of view. In areas of scanty rainfall it is quite urgent that dry farming methods be introduced and, along with them, crops better suited for such conditions should be introduced. A good deal may be done in the improvement of *juar*, *bajra*, maize and other perhaps less important cereals in this section of the country. Cotton is being investigated to good advantage by Government, and much improvement has been brought about by the use of seed obtained from Government sources. The cereal crops need to be improved in much the same way.

(ii) The writer is not aware of any new crops, other than possibly several new fodder crops, that might be introduced to good advantage, that is, radically new crops. Other varieties of the present kinds of cereal crops might be introduced to good advantage, but aside from the need for special and suitable fodder crops, together with the need for training in the use of the silo, the writer has no suggestions to make. Good fodder crops, with the use of the silo as a co-operative institution in villages, do need to be introduced very much.

(iii) The distribution of good seeds should be made a larger feature of better agriculture in India, and in this connection the writer would remark that he believes that there is a great future for the development of the seed industry in India. It would be a splendid thing if in each district there was enough private enterprise so that the production of seeds suitable for the crops of that district might be carried on as a successful business. Failing this, Government should see to the matter of supply and distribution of better seeds.

(*c*) On the farm of the Sangli Industrial and Agricultural School we have been successful in introducing three new drought-resistant and quick-maturing varieties of grain *sorghum* or *juar*. Two or these varieties are very satisfactory, from the point of view of flavour and bread-making qualities, while the third is not so good. This past season each variety gave an excellent yield with only 13 inches of rainfall, and improved cultivation, while not a farmer in the whole neighbourhood was successful in producing a single ear of *juar*. Needless to say, these three varieties are attracting a great deal of attention all throughout this region, and seed has been and is being distributed wherever it is asked for. These three varieties were

imported from the farm of the Agricultural College of the University of California, where they had been tried and tested for conditions of climate, &c., quite similar to those found in this section.

QUESTION 12.—CULTIVATION.—(i) In areas of scanty rainfall it is very necessary that steps be taken to instruct the cultivators in the need for and methods of conservation of the soil moisture. The use of the iron plough is increasing very satisfactorily in some sections of India, notably, the Maharashtra. But that is only half the battle. In fact, ploughed fields may become a source of economic loss to the cultivators through the loss of moisture, if they are left just as they are. Simple but practical clod crushers and soil compactors are urgently required. The ordinary country harrows appear to do fairly well for the mulching of the soil. However, the cultivator needs to be instructed thoroughly in the principles of dry farming. Much propaganda and demonstration work along these lines should be undertaken.

Then too, where irrigation is carried on, better methods of soil cultivation should be introduced. It is quite well known amongst the educated that a large quantity of water is wasted, and that frequent waterings appear to be necessary because of improper methods of cultivation. Much improvement might be effected along this line, with a resulting gain in net profit to the cultivator.

(ii) The customary rotations or mixtures of the more important crops appear to be fairly suitable, on the whole, but there probably could be considerable improvement wrought by advocating thinner sowings with greater distances between the rows, &c. Certainly where the rainfall is deficient such practice should be fostered. Such practice would mean less expense and trouble in weeding and interculture for all crops, regardless of the moisture and other factors of growth. The gain in quality and quantity of crop could easily be demonstrated.

QUESTION 13.—CROP PROTECTION, INTERNAL AND EXTERNAL.—(i) Existing measures for the protection of crops from external infection, pests and diseases may be efficient and sufficient enough if, by the word "external," sources from outside India are meant. However, more rigid quarantine would probably do more good than harm and would doubtless justify the expense.

If 'external" is intended to mean infection from other sections or districts, then one would have to confess that such measures are probably not efficient or sufficient enough. For example, should one district take it upon itself to rid itself of certain pests or diseases, such efforts would meet with but temporary success, for without co-operation throughout the whole country, those pests or diseases would easily spread again into the district concerned. Grasshoppers, rodents, insects and disease germs, &c., would not be limited in their activities to any particular locality, but would easily go from one place to another. Due to the uncertainty with reference to the meanings of the terms "external" and "internal," it is difficult to express one's views except only in a very general way, but that very positively. All such enemies of agriculture and its allied branches ought to be driven out of the country or, better still, out of existence.

(ii) And in that connection it is highly desirable that active steps be taken for the prevention of infection and loss through pests and disease. Better methods of storing seed, propaganda for the treatment of seed against infection, and concerted action to rid the country of rats and other rodents or predatory animals, injurious birds, insects, sources of disease, &c., should be undertaken in no uncertain manner. Religious views on the subject of the sacredness of life of such enemies as agriculture has are not as rigid as they once were, but appear to be fast softening, at least in a number of communities and sections of the country. Advantage should be taken of

this fact, and this matter of great economic loss to the country should be tackled in a red-blooded manner.

QUESTION 14.—IMPLEMENTS.—(*a*) One or two suggestions for the improvement of existing and introduction of new agricultural implements are offered:—

There is need for a simple type of manure spreader, something that will scatter the manure properly yet can be attached to the ordinary ox cart and removed at will. It is most gratifying to see the iron ploughs become more and more popular throught the Deccan and Maharashtra, and, as has already been intimated, a simple but practical type of clod crusher needs to be put on the market, this in order to secure a better and more complete tillage of the soil. It is also gratifying to note that the seeder is being improved, notably that used in the Maharashtra. Improvements in the cultivator and weeder, and more particularly a satisfactory machine for threshing and winnowing should be instituted very soon, and such a threshing machine, suitable for the grains of any given district, should be available.

(*b*) If co-operative implement societies were more common, the adoption of improved implements by the members thereof would doubtless be greatly hastened. In this general section of the country there appears to be a growing demand for such implements, but their cost is prohibitive to the individual farmer, unless they happen to be of the simpler and cheaper types. Then too, the more expensive and complicated implements are not understood by the ordinary cultivator, but if the society had its own mechanic, trained to operate and care for them, this difficulty could be overcome. As labour costs rise the indications are that such societies should become more popular.

It is also perhaps unnecessary to add that the agricultural engineering section should have its trained "fieldmen" who would be available for demonstration and propaganda work.

(*c*) In the case of certain agricultural appliances, the customs duty that must be paid makes a very decided difficulty in the matter of suitable costs for such appliances, if they are imported. For example, incubators and "foster mothers," when imported, have assessed on them a 15 per cent. customs duty, and this necessitates a much increased price. This holds true of all appliances for the poultry industry. Such a requirement with reference to imported articles should be removed.

A good many Indian cultivators feel that the European importing firms set too high a price even on machines and implements that have been brought in without duty or on as low a duty as 2 per cent. They feel that these firms demand too high a margin of profit on the articles they sell. There is thus created an almost hopeless attitude with reference to the purchase of such articles. It might be a good thing if some of the central co-operative institutions could undertake to import and distribute some of the more necessary kinds of agricultural implements, appliances and machinery.

QUESTION 16.—ANIMAL HUSBANDRY.—(*a*) (ii) To one who is interested in seeing the dairying industry bettered amongst the poor as well as amongst those better favoured, it would appear that the possibilities of utilising the goat for milk production has in it just as much a place in the future in India as it has already obtained for itself in other countries. The goat has the great advantage of being improved more rapidly than the larger dairy animals, while it is by no means so costly an animal, nor does it require so much in the way of feed for its upkeep. There is no reason why it should not become "the poor man's cow" in this country. Certain private individuals are already deeply interested in its improvement, but if Government would take this matter to heart and help in investigation and in the importation of better breeds of goats, it would

be well worth-while. It has been shown in western countries that the objection to goats' milk on the score of odour and flavour is one that can be easily removed, while the value of this milk for the healthy as well as the sick needs only to be advertised in order to attract attention to it. There are large numbers of very inferior goats already in this country, but they could be improved more easily than it will be possible to improve the large numbers of inferior cattle.

(*d*) The use of the silo as a co-operative measure might be developed to good advantage amongst the cultivators. This would doubtless necessitate the growing of special fodder crops, but the use of weeds and grass for silage, along with that of the special crops, would mean that not so much land would be required for these special crops. On the farm of the Sangli Industrial and Agricultural School this practice has been carried out successfully, such special crops as Sudan grass, honey *sorghum*, and the weeds and grass of the fields, having been made into silage to very good advantage. The pit silo, with an over-head wall of some four to six feet, has been found to be very successful. Village headmen could be induced to take up this matter amongst the more progressive farmers of the place. Succulent silage would help to tide over the cattle through the hot season and early rains until the new fodder was ready for use, and would do much to keep all livestock in excellent condition.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—(*a*) The number of days' work done by a cultivator on his own holding in this section probably does not exceed 180, and is more likely to be found in the neighbourhood of 150, if all factors are taken into consideration. During the slack season the cultivators do what cooly and other work they can find to do, but are frequently without any work. Many of them have a very hard time "carrying on." Weddings and certain religious festivals take up part of this unoccupied time, but it would appear that if employment were to be had, the cultivators would be quite ready to accept it.

(*b*) Much propaganda work needs to be done to encourage the people to take up new subsidiary industries. Along with this, demonstration work on a basis that will appeal to those for whom it is intended should be carried on. Without such actual demonstration it is doubtful if much impression will be made. This naturally implies that trained men, with the spirit of helpful service, are urgently needed for such work. The list of subsidiary industries given in the Questionnaire is quite good. Soap making, the making of cardboard matches, and the making of many useful articles out of old and worthless motor car tyres might be added to the list.

(*c*) Lack of knowledge of the possibilities of such industries as are mentioned, together with the lack of suitable marketing facilities for at least some of them, are probably the chief obstacles in the development of these industries. The climate would be a hindrance to bee-keeping in dry regions, but where this was favourable, the combination of this with poultry-keeping, fruit-growing and gardening would be one that would mean plenty of employment and income the year round. The writer is a firm believer in the possibilities of the poultry industry, especially for the regions of scanty rainfall, and would most heartily endorse every word of the resolutions of the first Poultry Conference, held in Calcutta in December, 1926. The school with which he is connected in Sangli has been attempting to establish this industry all through this general region, and has been engaged in giving training, as also in doing demonstration, experimentation and extension work for a number of years. It is the common thing to find good poultry in a large number of the villages now, while a few years ago one rarely ever saw good hens. Rope-making according to improved methods would be a means of help to a certain number

of people, and this industry, too, should be taken up and developed, especially in regions of scanty rainfall.

(*f*) Intensive study of the several rural industries in all of their several aspects is most heartily recommended. There is such a great need for the development of such industries that it is most important that they be thoroughly investigated and those selected and improved that will truly be of value to any given locality or section.

(*h*) The education of the coming generation with reference to sanitation, &c., seems to be the most effective means to accomplish better health conditions.

QUESTION 23.—GENERAL EDUCATION.—(*a*) (i) It would be a splendid thing if an agricultural course, complete in itself, were made available either in the vernaculars or in English for the period of the four years of high school, such a course to be designed especially for use in high schools located in the more rural areas. It would be a good thing if the present more literary requirements for matriculation were to be modified so that graduates of such high schools might be able to go on to agricultural colleges for more advanced training, should they desire to do so. Certain it is that such a course in the high schools would tend to give agriculture a better status, both in the minds of pupils and parents. This course, complete in itself, would ensure that pupils could go back to their own land and be able to farm it successfully without any further training, if they did not wish it or were not able to take it.

(ii) and (iii) The middle and primary schools, with the agricultural bias course and suitable nature study, together with school plots and gardens, home or school projects, would serve to attract to and prepare for such training as described above. Agriculture would thus be stressed and popularised from early youth onwards, and the resulting gain in interest and applied information would mean a tremendous lot for the future. The present existing agricultural schools, with their two-years' course, would doubtless receive even greater support than heretofore, while the increased facilities for agricultural education in the high schools and colleges would mean that the more advanced type of training would receive greater recognition. It would seem that the change from the more literary to the more practical and necessary kind of education could be effected without working too much of a revolution in the educational system. To the writer it appears that there is much more hope of influencing the future generations than of working much change in the present, and, to that end, no uncertain attempts should be put forth in all of the primary and middle schools.

Oral Evidence.

51,681. *The Chairman*: Mr. Goheen, you are Principal of the Sangli Industrial and Agricultural School at Sangli?—Yes.

51,682. And you are in charge of the Kolhapur Farm School?—Yes.

51,683. Is there any statement that you would like to make at this stage of your evidence, or may we ask you some questions?—I would like to answer questions.

51,684. Are you personally familiar with the Loni School?—I am.

51,685. And, on the whole, are you satisfied with the work which that school is doing?—Yes, but I think that the course is not sufficiently long; under the present circumstances it probably cannot be made longer, but personally I think it should be made a 4 year course in order to make it more complete.

51,686. How does its curriculum compare with that of the Sangli Industrial and Agricultural School?—It does not compare very favourably, be-

cause we are stressing there what are generally termed, in India, subsidiary industries.

51,687. You are proceeding on a different line altogether?—Yes; we ourselves call it an intensive type of agriculture. In Kolhapur, however, we are following much the same plan as the Loni plan, so that you might compare Kolhapur with Loni.

51,688. For how long has the Kolhapur farm school been running?—Just one year.

51,689. So that you have not had time to measure the results?—No.

51,690. Who is financing the Kolhapur School?—Kolhapur State has given the land for which they have paid about half a lakh of rupees, and they are financing the scholarship fees of the students; they also select the students. The Mission is financing the staff and the development of the institution.

51,691. How about the finances of the Sangli Industrial and Agricultural School?—That is run altogether by the Mission; the Sangli State has never given anything for the development or upkeep of the school.

51,692. Is any interest taken by the State in the school?—A great deal of interest although in an indirect way. I do not mean by way of inspection or anything like that, but their farmers come to us for any help or advice that we may be able to give, and we are educating a fair number of their boys.

51,693. At what age are you taking boys in the Sangli Industrial and Agricultural School?—Between the ages of 14 and 18; the lowest limit is 14 years.

51,694. When was the Sangli School started?—It was started as a trade school about 25 years ago, but agriculture was begun 15 years ago.

51,695. Have you any accurate record of the after careers of boys passing through the Sangli School?—We have a pretty fair record; for the most part, these boys came from the depressed classes formerly and they used to take up positions of service, becaue they have not had much capital to finance themselves; more recently, however, we have been getting a different type of boy who is able to finance himself and who goes back to his own land and carries on his business; that is to say, we are getting, in addition to the depressed class, some boys of the higher classes, those that are better off financially.

51,696. How long have you personally been familiar with the Sangli district?—For 15 years.

51,697. Do you notice a change in the outlook of the depressed classes in these 15 years?—Yes, I do; I think their economic status is rising, and they have now a slightly more hopeful outlook.

51,698. How about their aspirations and outlook on life? Are they rising too?—Very decidedly.

51,699. At what age do you propose to take boys to the Kolhapur Farm School?—We would prefer the same age as in the case of the Sangli School, namely 14 to 18.

51,700. Do you think that a boy who is educated up to the age of 17 is likely to return to the life of a cultivator in an ordinary Indian village?—No; that is why I say that the course ought to be a 4-year course. I think myself that the previous preparation of all pupils should be sufficient to put them on a maturer basis before they go to the agricultural schools.

51,701. Up to what age do you suggest that they should be educated?—Up to the age of 18 or 19.

51,702. You think that in that case a boy will face the life of a cultivator in an average Indian village?—I hope so, if, of course, he has previous agricultural training, which is an essential requirement.

51,703. Do you suggest that agricultural clubs might add some attraction to village life?—Yes.

51,704. And that Government should undertake the formation of clubs of that sort?—I think, in the first instance, Government would have to foster them just as they are fostering the Boy Scout movement; but later on I think they would become indigenous, that is, self-propagating institutions.

51,705. Is there any co-operation in the Sangli State?—There is some.

51,706. Have you gauged its effect at all?—Yes; until recently the management has not been very thoroughly handled; now that it is being handled very thoroughly, I think it is proving to be efficacious.

51,707. Are the primary societies genuine and living bodies?—Yes, those that are in existence.

51,708. Are they credit societies?—Credit, for the most part.

51,709. Would you turn to page 497 of your note. In answer to our Question 3 (*c*) you say: "If District Agricultural Overseers were organised into an association whose ideals of service were somewhat similar to those of, say, the Servants of India Society, the results would certainly be for the good of the propaganda that they are trying to spread." There again, I take it, you have it in mind that Government might foster the growth of such bodies?—Yes; the idea that I have in mind is that these Overseers are Government servants; their spirit of service might be developed through such an organisation; a spirit of helpful service would probably be fostered considerably by such an organisation.

51,710. On page 498, in answer to our Question 11 (*c*), you tell the Commission that on the farm at Sangli you have been successful in introducing three new drought-resistant and quick-maturing varieties of grain *sorghum* or *juar*. Two of those varieties were very satisfactory from the point of view of flavour and breadmaking qualities. Were those selected on the farm?—They were imported from California.

51,711. Have these been brought to the notice of the Agricultural Department?—I have just recently called Dr. Mann's attention to them. We are further testing them to make sure of our ground.

51,712. Are you at all uncertain about the result?—No. This year they had an acid test. We had 13 inches of rainfall. In our locality the indigenous *juari* takes 5 to 5½ months to mature; this year it did not contain anything except fodder, having been attacked by locusts in its later stages. But our varieties matured earlier, and we reaped them before the locusts came, and so they were not attacked. The fodder itself was very good, as well as the grain crop.

51,713. On page 499, in answer to our Question 13, paragraph (ii), you give it as your opinion that the religious views which make it difficult to destroy animals damaging crops are losing something of their intensity?—That is my experience; I am speaking chiefly for the Southern Mahratta country. I have talked with agriculturists in that part of the country, and I believe it holds good in other sections to a certain extent.

51,714. Do you think it has come to the point that when the unpleasant task is being carried out by other people, these susceptible folk will look the other way?—I do not think there will be much objection to it.

51,715. On page 500, under the heading "Animal Husbandry," you are anxious to see the possibilities of the goat as a milk-yielding animal

developed. Do you found your views on any particular experience?—Yes; I am doing a little along this line. We introduced two new breeds in our part of the country. One is the *surti*, which is found near Bombay, and the other is the *irak*, which was imported from Aden or Mesopotamia. The *irak* is hardier than the *surti*, although the *surti* is a better milker.

51,716. *The Raja of Parlakimedi*: What do they live upon?—Stubble and grass. They also eat fodder; we do have to provide some succulent green stuff for them.

51,717. Do they live upon grass chiefly, or do they live chiefly on young shoots?—I find that they eat a considerable quantity of grass, but their main sustenance is fodder, stubble and so-on.

51,718. The Indian goat prefers the leaves of trees to grass, and in that way it is a nuisance?—I think even the cattle will eat the succulent leaves of trees, but unfortunately they cannot get at them.

51,719. *The Chairman*: You have been able to increase the milk-yielding capacity by breeding?—Yes, by cross-breeding with country goats.

51,720. There seems to be some prejudice against goats' milk?—There is that prejudice even in Western countries. I think it is due to lack of education. Where such milk is produced on hygienic principles there is no flavour or odour. Here, in Bombay, goats' milk is sold, having been produced in perfectly sanitary quarters, and those who buy it are not able to detect any flavour or odour.

51,721. That has been my experience too, although the goat is capable of carrying serious infections, as, for instance, the one known as Malta fever. On page 502, under the heading of "General Education," you commend the idea that there should be an agricultural course available to boys at high schools. Do you think that that agricultural experience should be founded on farms attached to the schools or on a course designed to interest the boy in the agriculture of his own farm?—It should be the latter, because such high schools would not have sufficient land.

51,722. Also you would be faced with complications about management and so on. You think it better that the course should be designed to interest the boy in his own parents' holding?—Yes, and there the home project idea should be carried out.

51,723. *The Raja of Parlakimedi*: On the first page of your note you suggest that research should be carried out on the line of finding out suitable timber-yielding trees. Do you wish that each Province should tackle its own problem?—Yes.

51,724. Is it not done anywhere now?—I cannot say whether it is done or not, but I do not think it is done extensively in my part of the country; I see no results of any investigation anywhere.

51,725. In the southern parts of India, in Madras, there are plantations?—Yes, I have seen them around Madura District. In the Bombay Presidency, particularly in the Southern Division, I have seen nothing.

51,726. So your remarks are confined solely to the Bombay Presidency?—Yes.

51,727. You suggest research on diseases attacking poultry; but that is not the only difficulty which retards the industry; there are other problems as well?—Yes; there are plenty of other problems in the matter, such as lack of knowledge of poultry farming, good marketing facilities, religious views and so on, although, as in the case of insects and rats, my experience is that such views are less marked now than they used to be. We have got a poultry farm where we were able to demonstrate that poultry eggs have no life, and those who object to eating eggs had not much of an answer to give when they saw that.

51,728. *Sir James MacKenna*: Are you familiar with the work of Mr. Sam Higginbottom?—Yes.

51,729. Is your mission dealing mainly with the depressed classes?—We have been getting all kinds of people very recently; of course, they are from rural areas.

51,730. Are these boys drawn from the areas where the Missionaries are working or are they drawn from the general public?—They are chiefly drawn from the mission areas, but there are some who come from as far as Bombay.

51,731. I suppose you have talked with Mrs. Fawkes about poultry, have you?—Yes.

51,732. *Dewan Bahadur Malji*: Do the students from your school go back to agriculture?—Till very recently they were all from the depressed classes, and because of lack of capital they had to accept service with a view to saving money to redeem their land from the *sowcar* and then taking up agriculture. But in the main they have accepted agricultural service.

51,733. Is it a State school?—No; it is a private school.

51,734. Are they any scholarships?—Yes; a scholarship means, in that case, self-help.

51,735. You have given those facilities?—Yes.

51,736. The idea of an association of Agricultural Overseers can materialise only if this consists of all officers from the top, from the Director of Agriculture downwards?—Yes; I think so.

51,737. That will give facilities to the officers to compare notes with their colleagues from every part of the Province?—Yes.

51,738. *Dr. Hyder*: When did you import these goats from Mesopotamia?—They came from Mesopotamia; I got them from a man in the Civil Dairy in Poona; he got them from Mahommedan traders.

51,739. How long have you had them?—I have had them for five years; he got them about a year before I got them from him.

51,740. What is your rainfall at Sangli?—In recent years it has been about 13 inches.

51,741. Have these goats acclimatised themselves?—Yes; they are very hardy.

51,742. Do they not suffer from excessive rain?—No, because it is not excessive.

51,743. *Sir Chunilal Mehta*: On page 497 you have suggested the idea of an association like the Servants of India Society. Do you think that the agricultural overseers can be made into the type of men you are thinking of?—Yes; I think so. They are men who have had a pretty good education. What I think they lack is the inspiration of the farm.

51,744. Do they possess the necessary general education?—Yes.

51,745. What does an Overseer draw?—Rs.30 to Rs.50, I think.

51,746. I take it that you are thinking of social work for the general uplift of the village?—Yes.

51,747. For the kind of work that you are thinking of, do you not think that you want a higher type of men?—It would be advisable if such men could be had.

51,748. That is why you have suggested something on the lines of the Servants of India Society?—Yes.

51,749. These men, the members of the Servants of India Society, have had very good general training?—Yes.

51,749a. And they are imbued with the spirit of service?—Yes.

51,750. If you could form a body of men like that, with a desire to live in the villages, amongst the people, that is the type of thing that you want?—It is.

51,751. And you consider that most important?—Yes.

51,752. Not purely from the agricultural point of view, but also from the point of view of improving the agriculturist as a man?—Yes, the whole life.

51,753. After several years of experience you have come to this conclusion?—I have.

51,754. Have you any experience of the taluka development associations?—Very little, because I believe they are rather of recent organisation.

That is so. They were started only about three or four years ago.

51,755. What gave you this idea of the Servants of India Society? What made you come to that conclusion?—It was my own experience, and I have found it from talks with the revenue officials. Take the *mamlatdar* for instance. I have been in touch with several of them. They call me to help popularise agriculture. They call me to give lectures and so on. I have been glad to go, and they have expressed their appreciation, and they have been frank enough to state several times that they felt that the Overseers were inclined to regard their position in too much of an official capacity; they were not willing to put themselves out enough. I have had very little to do with the Overseers myself, except on rare occasions. That did coincide somewhat with other criticisms I heard from the agriculturists themselves. I felt that the thing that was lacking was not perhaps the ability, but it was the spirit at the back of it.

51,756. You said that you were in touch with Dr. Mann about these *juar* varieties that you have introduced?—Yes.

51,757. Do you know if similar work of trying to discover some drought resisting variety is done by the department also?—I think so. I know they are studying the grasses quite thoroughly. I cannot say so much for the cereal crops. They are studying cotton too, but I think perhaps cereal crops have not been undertaken in such study so much.

51,758. That is quite correct. *Juar* has only very recently been taken up for study. That is our biggest crop?—Yes.

51,759. You make certain suggestions about implements?—Yes.

51,760. One of the manufacturers who gave evidence here said that he would like to be told what was particularly suitable in particular tracts. For instance, have Messrs. Kirloskar Bros. ever approached you?—Yes. I happen to live about 20 miles from their place, and I was there about two months ago. I suggested the matter of the soil compactor and clod crusher. They took up my suggestion, and wrote asking to borrow the implement that I had of that type. So, I sent it to them. They have tested it out in their place; they found it not quite satisfactory. I had also had that experience and had made certain suggestions with reference to alterations. I saw their office manager just a few days ago, and he told me they were contemplating making these changes. They are very willing to co-operate; I can say that.

51,761. The instrument that you yourself possessed was an imported one?—Yes.

51,762. You make some remarks about silage?—Yes.

51,763. You think that is very valuable?—Yes.

51,764. The department have been working on it for some time, but it is not being taken up. Have you discovered any reasons why it does not become popular?—I think the ordinary cultivator cannot do it himself, but I think it ought to be a co-operative measure, that is a co-operative help measure, not necessarily co-operative finance, although there will be a little of that. Co-operation will be necessary in filling the silo and in the distribution of the silage when ready. I think that as an individual measure for the single ordinary cultivator it would not be a success, because you have to have a good many cattle to make it a success.

51,765. Co-operative silage has not been tried anywhere?—I believe not.

51,766. Has silage been done on your side?—Yes, we have done it.

51,767. Only yourselves?—For demonstration.

51,768. And your example has not been copied?—Not by individuals.

51,769. Nor by a combination of individuals?—No, because we have not had time to push that kind of propaganda very much. It ought to be done.

51,770. Do you specialise in any subsidiary industries?—We have done so, because it is a region of scanty rainfall, so that the cultivator is idle a great many days in the year and he must have subsidiary industries; I may say that we have developed a farm for dry conditions as well.

51,771. You have tried dry crop farming?—Yes.

51,772. Is that a success?—Of course it depends on the conservation of moisture; if you are able to do that, it is a success.

51,773. It is somewhat difficult?—It is difficult because in heavy clay soil you must have a certain kind of implement to handle that soil. It is difficult on that account. The Agricultural Engineer should give his attention to developing proper implements for that type of soil.

51,774. Was hand-spinning ever examined by you as a suitable subsidiary industry?—Never very carefully.

51,775. Has not Mr. Gandhi's movement taken any hold round about your parts?—No. I do not think there is a particle of it done.

51,776. Do you think it is practicable?—It may be, in villages where there are no other possibilities, but where there are other possibilities I do not think it is practicable.

51,777. What are the industries that you recommend besides poultry farming and goat rearing?—Sheep raising would be another one. Rope-making has good possibilities in certain parts.

51,778. There is only a limited demand for rope?—Yes, because the market has not been properly handled; but if that were investigated and the possibility of making ropes with simple machinery of an improved type were also investigated, I think it would prove to be very successful, because in our regions, where we have very scanty rainfall, the aloe grows very well, and as a cheap source of fibre it can be had in great quantities.

51,779. Any others besides?—I think those are the most important ones. I do not think there are any others.

51,780. Have any schemes on your side been considered for conserving the rainfall by means of *tals*?—Yes; there are such schemes. There are

such tanks and *tals* and so on in existence, but they are not scientifically worked out.

51,781. Do you set much value by these little schemes?—Yes.

51,782. You think they would be very useful?—Yes.

51,783. And a scientific examination should be made by an engineer?—Yes, decidedly.

51,784. People would take to it if *taccavi* loans were given?—I think so.

51,785. It would pay them?—Yes.

51,786. It is an economic proposition?—Yes.

(The witness withdrew.)

The Commission adjourned till 10 *a.m. on Thursday, the* 31*st March*, 1927.

Thursday, March 31st, 1927.

BOMBAY.

PRESENT:

THE MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir HENRY STAVELEY LAWRENCE, K.C.S.I., I.C.S.
Sir THOMAS MIDDLETON, K.B.E., C.B.
Sir JAMES MACKENNA, Kt., C.I.E., I.C.S.
Mr. H. CALVERT, C.I.E., I.C.S.
Raja SRI KRISHNA CHANDRA GAJAPATI NARAYANA DEO OF PARLAKIMEDI.
Dr. L. K. HYDER.
Mr. B. S. KAMAT.

The Hon'ble Sir CHUNILAL V. MEHTA, DEWAN BAHADUR A. U. MALJI (*Co-opted Members*).

Mr. J. A. MADAN, I.C.S., Mr. F. W. H. SMITH (*Joint Secretaries*).

THE INDIAN MERCHANTS' CHAMBER, BOMBAY.

Replies to the Questionnaire.

I am directed to send to you, hereby, the views of the Committee of this Chamber with regard to the problems referred to in the questionnaire of the Royal Commission on Agriculture.

My Committee do not answer the questions seriatim, for many of these relate to technical matters with which they are not conversant and on which they do not find themselves in a position to offer any opinions. There are, however, certain general principles involved in the questions, and my Committee would like to deal with these general principles. In the first place they would like to remark that the interests of trade, industries, commerce and agriculture are not divergent at all. In fact they would like to emphasize that the prosperity or adversity of agriculture has an intimate and immediate reaction upon trade, commerce and industries. It is because of this that my Committee have dealt with the main principles underlying your Questionnaire.

QUESTIONS 1, 2 AND 23.—RESEARCH, AGRICULTURAL AND GENERAL EDUCATION.—My Committee are of opinion that there is a vast field for research with regard to Indian agriculture. They recognise that useful work in this direction has been done at Pusa and other places both by the Imperial and Provincial Departments of Agriculture. While recognising this, however, they must clearly indicate that whatever research work has been done up to now has affected but a small portion of Indian agriculture, and that large tracts of land are cultivated year after year and large areas of crops turned out without their being affected for the better by the results of any research work. The Indian agriculturist is conservative like agriculturists all over the world, but not so conservative as not to accept recommendations made for his benefit. My Committee can point, as an instance, to the work being done by the Indian Central Cotton Committee, which is a body meant for specialising in cotton. They readily recognise that this Cotton Committee has done useful work, though they may have differed in the past with regard to some of its activities. There is also the Sugar Bureau which, too, should be credited with some useful work. It must be said, at the same time, that

the results arrived at by such committees or bureaux do not reach the agriculturists in this country owing to their want of education. In any other country, where the percentage of literacy is far higher than that in this country, results of research work would be circulated broadcast by means of leaflets, magic lantern shows, specialised journals, &c., but the abysmal illiteracy of the Indian agriculturists prevents the adoption of all these methods in this country. So, while emphasizing the need for research work, my Committee would like to emphasize still more the need for the spread of primary education throughout the country. There are several problems of the rural areas like sanitation, want of medical help, poverty of the ryots, &c., which are to a large extent due to agricultural illiteracy. My Committee trust that the Royal Commission will lay very great emphasis upon the necessity and importance of primary education. My Committee are also of opinion that the education given in rural areas must include at least the rudiments of agricultural education which will make the boys and girls of the peasants better farmers.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—Views are invited on the main causes of borrowing, the sources of credit and the reasons that prevent repayment. The view of my Committee is that the one fundamental cause is that, taken over a series of years, the remuneration or net return left to those engaged in agriculture is much lower than in any other walk of life. This is why the Indian agriculturist is so constantly in debt and why his debt goes on increasing. There are some good years, but they do not compensate sufficiently for the bad years to leave him a surplus. The result is that the agricultural population is considered far less solvent, far less creditworthy than other classes, and has to pay extremely high rates for such money as it can borrow. My Committee understand that 20 to 25 per cent. is not at all unusual, and in the more backward tracts it may run to 50 and even 75 per cent., but even at 25 per cent. compound interest money doubles in only three years, and it is therefore easy to see that once a cultivator is unlucky enough to have two successive bad seasons he has hardly any chance of freeing himself from debt during the rest of his life. The position is made even more difficult in the case of the Indian cultivator, because he never thinks of repudiating a debt incurred not by himself but by his father or grandfather, and slaves away all his life for the benefit of his *sowcar*. The fundamental problem in the question of the agricultural debt is to find out why the cultivator's return is so very poor and to devise means that may make him a more solvent borrower and enable him to borrow for his needs at moderate rates. My Committee can only state the problem here, and must leave the Commission to find a solution.

QUESTION 7.—FRAGMENTATION OF HOLDINGS.—One of the greatest causes of the economic poverty of the rural population in this country is the very large division in holdings consequent upon the peculiar Hindu Inheritance laws. The agricultural holdings are reduced to the size of even two, four and five acres and sometimes even less. In fact the average size of an agricultural holding in this country is probably much smaller than is to be found in any other civilised country. These holdings do not give even bare maintenance, and yet such is the love of land of these people and such is the dearth of any useful vocation that an agricultural family will not shift to any other place, leaving off its holding which does not even give it sufficient means to maintain itself. It is up to the Royal Commission to find out if any way can be found out of this *impasse*. It may be mentioned that several Provincial Governments, so far as the information of my Committee goes, have been considering this question, but it is so delicate that up to this time it has not been found possible to take any definite steps to remove the evil. The matter is said to be delicate here as it involves the Hindu Laws of Inheritance, which affect a large mass of population both agricultural and non-agricultural. The one possible remedy seems to be to fix a limit of what

may be called an economic agricultural holding and prevent alienation of land below such limit. The question is whether this can be done without affecting the Hindu Inheritance laws or whether these laws should be changed in the interests of the country.

QUESTION 8.—IRRIGATION.—My Committee beg to suggest that the distribution of water from the canals should be in the hands of the Agricultural Department. The construction of canals and their maintenance are at present with the Irrigation Department. The construction and maintenance of canals should naturally continue to be looked after by the Irrigation Department, but my Committee think that the distribution of water should vest in the Agricultural Department, as it causes a lot of annoyance and inconvenience to agriculturists to have two agencies, viz., the Irrigation Department and the Agricultural Department, interfering with regard to these questions. It is the Agricultural Department which is in the best position to know what are the requirements of agriculturists with regard to water, and so the control should vest in it.

QUESTION 17.—AGRICULTURAL INDUSTRIES. This is very important. In the opinion of my Committee the only subsidiary industry which can be suggested for the whole of India is the hand-spinning and hand-weaving industry. There are other subsidiary industries like dairying, poultry farming, sericulture, apiculture, toy making, match manufacture, &c., but all these have got their limitations. Sericulture and apiculture, for instance, require a particular climate, while even dairying will not be deemed suitable for all the different parts of the country. Hand-spinning and hand-weaving, on the contrary, was once an All-India agricultural subsidiary industry, and there is no reason why it should not again retain its old position. My Committee consider this industry here only from the point of view of an agricultural subsidiary industry, i.e., an industry which is useful for occupying the spare time of agriculturists and giving them an occupation when they are not otherwise engaged. The idea is to have every village as a self-contained unit. The yarn produced by the housewives working on the spinning-wheel in their spare time will be turned into cloth by the weavers of the village, who are generally paid in kind. It is found that in this wise every family will provide its own clothing for the whole year from its own yarn. The hand-loom industry is still alive and thriving to such an extent that it practically supplies one-third of the total requirements of India in the shape of cotton piece goods. The hand-spinning wheel is not, however, so evident as it was before, but given a proper organisation and proper credit facilities this cottage industry of hand-spun and hand-woven cloth will meet with much success, and will go to relieve the agricultural poverty to a very large extent.

Efforts may also be made to introduce other suitable subsidiary industries according to the particular geographical, climatic, social and economic conditions of the various districts.

QUESTION 20.—MARKETING.—My Committee would not consider the existing facilities as satisfactory. The Indian agriculturist has no staying power, and the result is that he has frequently to sell off his stuff, even before he brings the crops home, to the village *sowcar* or to the exporter. There must be more of co-operative organisations, therefore, or agricultural banks to help the farmers with regard to their crops so that they may be able to wait, for some time, in order to get good prices for them.

(*d*) With regard to this again, the illiteracy of the agriculturist referred to by my Committee in the very beginning of this note will be a great adverse factor. All such information will be thrown away on him as he can neither read nor write.

The Indian Merchants' Chamber.

QUESTION 22.—CO-OPERATION.—My Committee would prefer to leave any detailed replies to those more closely connected with the co-operative movement and would only remark here that if the cultivator in many parts of this Presidency is still borrowing at 20 to 25 per cent. per annum or more, there must be something radically wrong with either the organisation or the methods of the co-operative movement.

Oral Evidence.

THE INDIAN MERCHANTS' CHAMBER WAS REPRESENTED BY MR. WALCHAND HIRACHAND, PRESIDENT, AND MR. J. K. MEHTA, SECRETARY.

51,787. *The Chairman*: Mr. Walchand Hirachand, you have submitted a note of the evidence which the Chamber wishes to lay before the Commission. Would you like to amplify that by a general statement or make any correction?—(*Mr. Walchand Hirachand.*) As mentioned in the note, it is on very general lines. As representing mercantile interests, we have naturally not tried to touch on any technical points such as research or education. We have gone into a little detail on the subject of the distribution of water to agriculturists, how and when and by which department it should be done, and so on. If the Commission would like to know something more about marketing, about where the merchant comes in, in the distributing system, I would like to give some more information. Personally I am interested in agriculture as an industry or business and not as a legacy which the agriculturist generally gets in this country, and if concrete instances of general difficulties of agriculturists are desired or if the Commission wishes to know why agriculture is not taken up as a business, I am at the disposal of the Commission and will give my personal views on those points.

51,788. I observe that at the commencement of your note you emphasise the fact that the interests of trade, industries, commerce, and agriculture, are one. Are you familiar with the organisation of the Indian Central Cotton Committee?—Personally I am not, but the Chamber as such have got a representative on that committee. Personally I do not know anything about the working of that committee.

51,789. The central point in the organisation of that committee is that it is representative of every stage from the producer to the final marketing of the commodity and it makes possible a conference between all the branches of the industry; it places at the disposal of the grower the marketing and commercial aspect of the commodity and it also informs the merchant of the scientific and agricultural difficulties involved. Does that general principle appeal to you as a sound one in the organisation of research?—I think we have said so somewhere in the note.

51,790. You yourself have no special knowledge of the Indian Central Cotton Committee?—None.

51,791. Broadly speaking, you do accept that that principle is a sound one?—Yes.

51,792. Do you think it is one which might be extended to other crops?—Yes.

51,793. Have you any views, as a Corporation, as to the crops to which it might be extended?—My experience is restricted to the Central Division of the Bombay Presidency, the Deccan as it is called. There, if feasible, it could be extended to sugarcane, jaggery.

51,794. Cane-growing?—Yes.

51,795. To include sugar-making or mainly *gur*-making?—Primarily *gur*-making.

51,796. Broadly speaking, I see that the Chamber takes the view that although good work is being done by the Agricultural Departments, only the fringe of the subject has so far been touched and that a very much greater effort is required?—Yes.

51,797. In other words, you wish to see more public money spent on research, propaganda and demonstrations?—Yes.

51,798. Have you any more detailed views on the problem of primary education than those set out in your note?—Would you like to develop that at all?—No, but we lay sufficient stress on the necessity of primary education.

51,799. You point out that that is the prime necessity of development and, as such, its progress should be expedited?—Yes.

51,800. Have you any views on agricultural education?—Nothing in particular, as a study.

51,801. Would you agree that, broadly speaking, the function of primary education is to impart literacy and that in the primary stage of education it would be a mistake to introduce any vocational training?—No. If possible the vocational education should be given even at the initial stage of training.

51,802. You think that vocational education should be introduced in the primary stage?—Yes.

51,803. You think a small boy of ten years can be taught to be a farmer? —I would not put it so emphatically as that he should be "taught to be a farmer," but the rudimentary principles of farming should be given along with primary education as far as possible, consistently with the boy's age and development.

51,804. By all means let his arithmetic and his reading and writing be imparted to him in terms with which he is familiar in his father's home as a cultivator's son, but would you agree that, with the limited time at the disposal of the teacher and having regard to the quality of the teacher usually employed in primary schools, any attempt at an advanced system of vocational training would be a mistake at this stage?—I do not suggest any advanced system or anything of that sort, but simply teaching the boy to observe agricultural conditions.

51,805. Nature study?—Yes.

51,806. Have you anything to say on the problem of agricultural education?—No.

51,807. I see that you leave the solving of the problem of fragmentation to the Royal Commission?—It is a very technical matter beset with many difficulties, and we thought that the Commission would be the proper body to tackle it.

51,808. I follow your views on the problem of agricultural indebtedness as given in your answer to Question 6, page 511 of your note, but I do not know whether your Chamber has developed any views as to the best machinery for placing long-term credit at the disposal of the cultivator?— We have not specially studied that question.

51,809. Have you yourself any views?—No.

51,810. Are you familiar with the history of agricultural credit in Egypt? —No.

51,811. Do I understand from your answer to Question 8 under Irrigation, page 512 of your note, that the view of your Chamber is that the functions of the Irrigation Department should be confined to the engineering and technical side of irrigation and that the actual distribution of water and charges should be in the hands of the Agricultural Department?—Yes. We

find many times that the engineers, as such, do not know (and naturally cannot be expected to know) the actual requirements of the agriculturists. Therefore, the distribution should be in the hands of the Agricultural Department who are supposed to be in touch with the agriculturists. On several occasions serious difficulties have arisen owing to the present arrangements.

51,812. As a problem of practical organisation, at what point in the system, as the water flows through that system, would you end the responsibility of the Irrigation Department and hand the water over to the Agricultural Department?—On the same basis as obtains in the Railway where the work has been divided between the Engineering and Traffic branches. The Agricultural Department will tell the Irrigation Department that they want so many waterings for so many crops through a particular distributory and then the Irrigation Department will carry out those orders.

51,813. Provided there is enough water to do it?—In mutual discussion they will settle the quantity of water that is available and will then distribute it.

51,814. What you are really concerned to do is to bring the agricultural knowledge at the disposal of the Agricultural Department to bear on the general administration of the systems of irrigation?—Exactly; the Agricultural Department should be at the top and the Irrigation Department should follow out the instructions of the Agricultural Department.

51,815. You prefer that the Agricultural Department should be responsible for determining the water charges rather than the Revenue Department?—Yes.

51,816. You know that, in some cases, the Revenue Department is responsible although as a rule the Irrigation Department is responsible for collecting the charges?—The Revenue Department collects, but the Agricultural Department should have the say in the matter.

51,817. Has your Chamber arrived at any views about the maintenance of subsidiary industries dealt with on page 512 of your note?—We have not made a special study, but we have expressed our views in a general way there.

51,818. Do you know at all the amount of money that a cultivator or his wife can hope to make by hand spinning or weaving?—The Secretary, Mr. Mehta, will be able to enlighten you on that point. (*Mr. Mehta.*) We have worked it out like this. In normal times when agricultural pursuits are being followed, the wife or the mother in the family can devote about two or three hours to hand spinning, but when there is no agricultural pursuit going on then they are able to devote more hours. My calculation is that per count per pound it will mean half an anna; if our counts are generally 10 counts then it will mean 5 annas per pound.

51,819. What do you consider that a cultivator's wife would be able to make per week or per month?—Roughly about Rs.2 to Rs.4 per month, according to the time she devotes. The average earning is about from Rs.15 to Rs.19 a year.

51,820. Is that whole-time or subsidiary?—Subsidiary; whole-time occupation is only taken up by women of the middle classes.

51,821. If you would like to develop your views on marketing we should be glad to hear them, Mr. Walchand?—The two sub-divisions under marketing will be means of transport and the actual distribution or places for marketing. As regards transport and communications, I think we here, particularly the Bombay Government, have been most backward. I should say that this Government has been the most backward Provincial Government as regards the provision of transport facilities. Comparatively speaking, the Punjab, Madras, and the Central Provinces are ahead of this Province. This

Government has failed to do much, even though they were not required to find the money, the Railway Board being responsible for that part of the business. From an examination of the Railway Budget it will be seen that three hundred miles of railway are expected to be opened this year in the Punjab, and as for the South Indian Railway they are also very busy constructing railway lines. The same is the case with the Central Provinces. But in the Bombay Presidency during the last 20 years, with the exception of one or two feeder lines, the State Railways have not constructed any line at all worth considering. The same applies in the case of road communications. We have improved our old roads considerably, but as regards the construction of new roads we have been very backward in this Province, particularly in the Central Division. The Bombay Government is not required to find the funds in the case of railways, and it is regrettable that, even then, they are not going ahead in the matter of pushing on the opening of new lines. The Railway Board is concerned with the provision of funds, and I believe they are prepared to provide any amount of money if only the Government of Bombay push on with this matter. I can give you concrete instances to show that the Government of Bombay are sitting silent and not taking any action in this direction, whereas almost every other Government is pressing this matter.

51,822. *Sir Henry Lawrence*: Can you give any instances where the Bombay Government have not given effect to their projected schemes?—Yes; take the Manmad-Malegaon-Satana railway which is a scheme almost 40 years old. During the last 15 years it has been traffic surveyed about half a dozen times, and it has now been suggested that it will not be a paying concern. There are three lines round about this locality and one of them has been consistently paying for the last five years 8 to 9 per cent., another 12 per cent. The third is the Nizam's Guaranteed State Railway starting from Manmad. Last year they paid 15 per cent., and before that I believe it was more than 10 per cent. I am giving you these three railway lines as an analogy to show that as these railways, which are round about the locality through which the Manmad-Malegaon-Satana line would, if constructed, pass, are paying concerns, there is no reason why this railway should also not be made a paying concern. None of these three constructed lines have any sort of irrigation, whereas this tract through which the Manmad-Malegaon-Satana railway would pass is a highly developed tract, being fully irrigated, not recently, but for the last hundred years. I say that the Government of Bombay are sleeping over the matter and are not showing any activity in the way of pressing forward the construction of this railway. If they had taken up the matter and pushed it through, we would have had a railway running through that tract long ago.

51,823. *The Chairman*: In your opinion, are there any other new lines of which the Presidency stands in urgent need?—I should say there are many; but having studied this railway line fairly elaborately, I am able to speak more definitely in this matter.

51,824. No other particular cases come to your mind?—There are many other cases, but as I say I have not studied them so closely, so intimately, as I have in the case of this particular railway.

51,825. In connection with marketing, you attach great importance to the development of communications and transport of every sort?—Yes. Again I find that there are service roads of the Irrigation Department. Neither the service roads nor the telegraphic or telephonic services are made available to the agriculturists or merchants. These services are used possibly only for the purposes of the inspecting staff. If they are thrown open to the public they will be a great boon to the public.

51,826. Are not most of these canal roads made with the soil excavated from canals?—No; these, which I am referring to, are *murum* roads.

51,827. Are these roads which you are referring to sufficient for all kinds of traffic?—They are good enough for country carts, but not for motor-lorry traffic.

51,828. Is it your view that these roads are fit for country carts without the necessity of any further metalling?—In some cases, yes.

51,829. If the opening of these roads to the public were to result in increased maintenance charges, who do you suggest should meet those charges?—A small toll may be levied, and I do not think that would be complained of; the receipts would, of course, be utilised towards the maintenance of these roads.

51,830. With regard to telephones, do you know whether the staff maintained by the Irrigation Department is sufficient to cope with the business likely to result from opening the wires to the public?—I shall just give you an instance: At the terminus of this canal at Malegaon, they use the services of a signaller in the office of the Assistant Engineer in charge. The telegraph office is only about half a mile away from that place Had the terminus been at the post office, then it would have obviated the need for this signaller, and the public would also be able to use the irrigation service. This would not only have saved them the signaller's charges, but would have afforded convenience to the department as well as to the public.

51,831. Have you anything to say with regard to primary marketing?—I would like you to define the expression primary market?

51,832. That is the first market which the produce reaches, the market with which the cultivator deals?—There seems to be an impression that the cost of distributing is comparatively a great burden; with that statement I do not agree. Our market conditions, that is to say, handling by the middleman, the distributor, the merchant, or whatever you call him, are comparatively very economic and also efficient. There is not much of middlemen's profits, nor are there many middlemen. The village Marwari or middleman is in touch with the Bombay market and is always satisfied with a very reasonable percentage; sometimes he receives a very poor percentage and is satisfied with it. There may be stray cases of dishonesty or some such thing, but as a rule I think the services rendered by the distributor, the middleman are good, economic and efficient.

51,833. Is it your view that the cultivator obtains a due share of the value, in the world market, of the produce he grows?—Generally, when he is not deep in debt. Generally he is more or less a free man; his sales are not forced and he gets a reasonable price for his produce.

51,834. You think when he is deeply indebted he is at a great disadvantage in the market?—He is at a great disadvantage when he has to sell to the *sowcar* to whom he is indebted.

51,835. An unduly small proportion of his debt is cancelled by the *sowcar* when the cultivator hands over his produce?—The cultivator is not a free man there, and the *sowcar* dictates his terms.

51,836. Too small a price is allowed by the *sowcar* when the *sowcar* takes the produce in part payment of the debt?—In cases where the agriculturist is deeply indebted and his credit is very low, that does happen.

51,837. Do your members deal in groundnut and oil seeds?—Yes.

51,838. Have you anything that you would like to say about the practice of damping groundnut?—I have no personal experience of that, and I have no views to offer.

51,839. Are there any other points in marketing which you would like to touch upon?—No.

51,840. Have you exporters amongst your members?—Yes.

51,841. What do you say about the reputation of Indian goods on the world's markets?—Personally, I am not an exporter, and I do not know much of the reputation of Indian produce abroad. But I do not think it has much to do with either the exporter or the distributor if the officers of the Agricultural Department help to produce better quality crops.

51,842. And to improve the practice of preparation for the market, grading and so on?—Yes, and grading. I do not want to assume that any unfair practices are generally in vogue; there might be stray cases of unfair practices, but they are not generally in vogue, so far as my information goes.

51,843. Do you think that the time has come when the whole question of grades and standards for Indian produce exported might be reviewed?—Yes, I think so.

51,844. Are you aware that there is a growing competition in the matter of oil seeds of some varieties from East Africa, for instance?—I do not know particularly about East Africa, but there is growing competition.

51,845. It is, therefore, important that the reputation of Indian goods should be maintained as high as possible?—Yes, I agree. While on this subject, I wish to bring to the notice of the Commission that there are many handicaps due to red-tapeism which unnecessarily increase the cost of cultivation to the agriculturist, or to the business man who wants to take to agriculture as an industry. We had an Indian Minister, after the Reforms, who lectured to us in the Indian Merchants' Chamber that we ought not to disregard this most important industry of agriculture. That induced me to go in for it. I have found there a great many difficulties which can be easily got over without much cost to the State or to any one else. They are solely due to red-tape; rules once made continue to be enforced, and no one seems to be prepared to study their working and to revise them when necessity arises. For instance, in the matter of distribution of water in canals, they say that agriculturists upstream, if they want water, must build an outlet well. Now, an outlet well costs Rs. 2,000. What is the man who has only one small survey number or two survey numbers to do? I have tried to discuss this matter with half a dozen irrigation officers; they say: "The rules are there." I do not see the reason for having this outlet well at all. The water going through the cutting is automatically stopped; the man is not going to waste it after it has been pumped; it costs him from Rs.5 to Rs.150 an acre to pump it, and it would not pay him to waste it; and even if he is careless about it there are the officers to supervise and to regulate the supply. In my case they insisted on my building that outlet well, and I had to pay for it. This well is only a small thing, but it takes 12 months to get it done. First of all, we have to make an application, get an estimate and the sanction neessary, and then deposit money. All this takes 12 months at least, and in one case it took me 24 months. That is a great hardship on the agriculturist; he has his standing charges and he loses the season. This is detrimental to the development of agriculture.

51,846. *Sir Chunilal Mehta*: Was this represented to the Minister in charge of Agriculture?—I did not write to the Minister, but I wrote and appealed to the Superintending Engineer, and the reply was "No."

51,847. *Sir Henry Lawrence*: In which year was it?—In the year 1923 or 1924.

51,848. *The Chairman*: Do you own any farm or lands yourself?—Yes. Perhaps it would interest the Commission to know what my experience has been. Four years ago I took to agriculture as a business. I own 1,800 acres of land, out of which 700 acres are under irrigation. This, individually, is considered a big estate, and the various difficulties of the agriculturists, such as fragmentation of holdings, illiteracy, &c., do not apply to it. It is developed on modern lines; it is almost mechanised; I can call it a motorised

farm. We have got five tractors. Not only ploughing and other field operations are done by modern implements, but even sugarcane crushing is done on modern lines. In the initial stages, even the Agricultural Engineer to the Bombay Government was of opinion that it was impossible to use tractors successfully in the Central Division. But I bought these, and they are working splendidly. Although the Agricultural Engineer was of the opinion that tractors would not be of any use in the Bombay Presidency except in parts of Gujarat, I have found them of immense use after three or four years' experience; they are able to hold their own as against bullocks in the matter of cost.

51,849. *Sir Thomas Middleton*: Where is this land?—In the Nasik District, Malegaon taluka; it is seven or eight miles from Malegaon. Our estate is visited by the officers of the Agricultural Department, who have sometimes been short of grants for travelling allowance. Once or twice when we wanted their advice very badly, they stated that their travelling allowance grant was exhausted and they could not come. They have given me good advice whenever they came. I am not complaining against any person, but against the system. Both the agricultural and the irrigation officers have been very good to me. As regards the financial results, without allowing for interest, which I am willing to defer till the lands are fully developed, my loss during the last three years has been in the neighbourhood of about 15 per cent., in spite of the perpendicular fall in prices in cotton, *gur* and other money crops. If the exchange was one and fourpence my loss would have been nominal. I am referring to the rupee exchange stabilisation at one and sixpence instead of one and fourpence. Almost 90 per cent. of my cost of production is on labour, and there has been no decrease in that cost, in spite of the appreciation in the rupee; I am paying the same wages as I was paying in 1922-23. There has been no reduction in the cost of production owing to the appreciated rupee, while on a *khandi* of cotton, valued in Liverpool at £20, instead of getting Rs.300, which would have been the case if the exchange is at one and fourpence, I get only Rs.264 or so. So that if the exchange had been fixed at one and fourpence my loss would have been nominal. I have kept accounts systematically. If the Central Government had been alive to the interests of the cultivator they would not have taken this very serious criminal action.

51,850. *The Chairman*: What proportion of your land is under cotton?—It varies according to rotation and water. Last year we had, under cotton, 100 acres of irrigated land and 200 acres of dry land. The dry land gives a very poor yield.

51,851. And sugarcane?—It varies from year to year between 30 and 50 acres.

51,852. And the balance of the 700 acres?—We grow chillies, tobacco, and bananas. Altogether we have 400 acres developed; the rest (300 acres) will come into operation only this year.

51,853. It has been 400 acres up to now?—Yes. We have chillies, bananas, tobacco and various other crops; there are fodder crops covering 40 to 50 acres.

51,854. Who is managing the farm for you?—I started with a B.Ag. (a graduate of the Agricultural College); his methods were not economic, although pushful; so I have got men having actual experience from my district, Sholapur.

51,855. They are all practical farmers?—Yes.

51,856. When did you get rid of this uneconomic but pushful gentleman?—Within about six months after I started.

51,857. And have you now no person trained in the Agricultural College on your estate?—There is no man trained at the Agricultural College.

But some of my men have been through these courses on the Manjri farm two or three times, and they have practical experience of their special crops. One of the men had been engaged in sugarcane cultivation successfully for 10 years, and he has specialised in sugarcane.

51,858. *Sir Henry Lawrence*: On a Government farm?—No; on a private farm at Sholapur. He went through the courses at Manjri three or four times. They have there the 15 days' course, the three months' course, and so on.

51,859. Are they of any value?—Yes, they are of great value. I had all my staff of 30 men on the farm sent at my expense to the Poona Agricultural Show, and I think it did an amount of good to them. The other difficulty is that the Irrigation Engineers are not prepared to enter into an agreement or something of that sort that they shall give the cultivator so much water if he develops the land. Where there is lift irrigation, it has cost an amount of money. I spent thousands of rupees in building embankments, etc. I wanted the department to undertake that they would give me the full amount of water if I developed the land. They said that the Government canal was there and they would give water to me, but I now find they have cut me down to 50 per cent. of my requirement. That is a great handicap for anyone spending all this money. This has happened at some other places—to mention one, in Sholapur. They built a tank for the agriculturists; immediately afterwards, other interests like railways and mills come in, and they tell the agriculturists that they cannot give them the necessary amount of water or something of that sort. Here the agriculturists spend possibly lakhs of rupees in developing the land, and then subsequent interests come in and the agriculturist is deprived of his water. The question of water supply for Malegaon city is now being considered and the agriculturist has no definite assurance that he will get his water.

51,860. *Sir Chunilal Mehta*: Has that happened in this case?—I put in my application for a certain amount of water and pressed my point. They said that they were temporarily short of water, and that they would give me only a certain percentage of my requirements, and therefore asked me to put in my application for as small an acreage as I could; and even on that they have cut me to the extent of 50 per cent.

51,861. Has the water been diverted in this case, as you said it was diverted in Sholapur?—In this case, it has not.

51,862. It is purely a question of shortage of water?—This year it is so. But I am afraid the same thing that developed in Sholapur is coming on here. The maximum area commanded is 8,500 acres, and they have got water for all that. But they are committing themselves further. There is the question of the water supply for Malegaon, and if Malegaon gets it, the agriculturist for whom the canal was built and on the strength of which he has spent money in developing his land, will not get enough water. Then possibly a textile mill will come, and there may be other requirements; the railway may come in. At Sholapur the railway took off a good bit of the water; they did not make their own arrangements, and the poor agriculturist, the mutest man, who cannot make his voice heard, has to suffer and is suffering. The land round about Sholapur happens to be intensively cultivated and very well cultivated, but owing to the springing up of subsequent industries, the textile mills and the railway, the agriculturist is made to suffer. That being the case, how can the agriculturist be expected to put in a very big sum of money in developing the land (it has been developed very well and very rapidly) without an assurance from the Irrigation Department that water to that extent, or to a particular extent, shall be supplied?

51,863. *The Chairman*: Are you growing any fruit other than bananas?—I am putting in a very big fruit plantation. My programme is to have a fruit garden of 100 acres; it will be one of the biggest individual fruit plantations in the Presidency. We have started with pomegranates, guavas, mango and *chikku*. I am putting in limes, to begin with, 5,000 trees, or something of that sort, according as the land was selected by the agricultural specialist.

51,864. *Sir Henry Lawrence*: How much money did you invest in this farm from start to finish?—It has come up to about Rs.3,25,000. I am afraid, by the end of next year, when the whole development will be complete, it will be Rs.4 lakhs, including the purchase of land.

51,865. Can you find any supply of water in wells?—In some areas I can, and I am developing it now. I have to do so in view of the attitude of the Irrigation Department.

51,866. When you invested this money, you were depending on irrigation?—Entirely. The Irrigation Department said "You will get the water, but as a Government we cannot give a guarantee." I quite agree that if it is any cause beyond their control, such as an accident or a burst, they may not be able to supply the water, but normally they should give the water, and enter into a contract to do so, but they are not prepared to do so.

51,867. Is this a new canal?—I think the dam was built in 1911; the last portion of the canal, in which I am interested, was opened six years ago. It is the Girna canal.

51,868. You are not complaining, then, that individuals are given unfair preference to you?—No.

51,869. But that other interests come in subsequently, and those interests are given preference?—Yes.

51,870. You are not suggesting any corruption about it?—No. I am not suggesting any corruption. What I say is, whether other interests come in or not, it is but fair that a contract should be given to the agriculturist that he shall get his water, if not the whole amount a certain fixed percentage of it. Before you expect him to spend money in developing the land, some sort of an assurance should be given to him.

51,871. And your suggestion is that agricultural interests are sacrificed to urban interests?—Yes.

51,872. That has happened in Sholapur?—Yes.

51,873. In the case of the Sholapur canal, did the urban interests come in afterwards? Was the agriculturists' interest the primary purpose for which the canal was constructed?—I think a long case was made about that, but I was not prepared to go into the details of that. Possibly you might be aware that on behalf of the agriculturists' association strong representations were made, but as usual unsuccessfully.

51,874. I have not got in mind the arguments. I know the matter was very fully discussed on both sides?—The fact is there; the water has been given, in preference, to the mills and the railway.

51,875. It was given, in preference, to the mills?—To the mills which came in subsequently and the railway.

51,876. Over the agriculturists?—Yes.

51,877. That is your view. I do not say whether I accept it or not?—To my knowledge these are the facts. I can send you up the papers in connection with that, or possibly Government have got the file with them.

51,878. *Sir Chunilal Mehta*: How long have the mills been using the water?—The oldest mill is, I think, 50 years old, but the subsequent mills are 20 to 30 years old. There is only one old mill; that started with roughly 10,000 spindles, but it has gone up to 100,000 spindles now; so also, in the beginning it had 200 or so looms, and now it has increased to 2,200 looms.

51,879. For how many years have the old mills been using this water from the canal?—I will have to refer to the report.

51,880. *Sir Henry Lawrence*: It is 50 years old?—It was started 50 years ago, but I am not prepared to say whether they have been using the water from that day.

51,881. I do not know the facts. I heard that the matter was fully discussed and both sides had able representation?—As usual, there has been no decision and the agriculturist is suffering. His water has been cut off entirely, and the mills are steaming there as usual. The same is the case with the railway.

51,882. You do not refer to the water consumed by the city of Sholapur?—No.

51,883. I suppose the water consumed in the Sholapur city is the largest interest?—I am not sure whether the canal was built jointly for the Municipality and irrigation, and that is why I am not complaining against the municipal consumption.

51,884. What proportion of the whole is municipal consumption?—I cannot tell you off-hand.

51,885. Is it 80 or 90 per cent.?—I do not know.

51,886. It might be?—The population is 110,000. May I make it clear that I am placing the agriculturists' points of view in my personal capacity and not in my capacity as President of the Indian Merchants' Chamber.

51,887. *Mr. Kamat*: Is it your view that if the industry of Sholapur is likely to be developed by new mills, they should be peremptorily told that they would not get any water, and all the water should be reserved for the agriculturists?—I should say that a contract is a contract and is binding. Government built the tank for the irrigators, or at least they have been giving the water to the irrigators, and unless and until they find new sources of water they should tell the mills that they will have to make their own *bundobust*, or wait till a new tank has been constructed.

51,888. It is the industry I am talking of?—That is the only industry there. All newcomers should naturally wait till a proper *bundobust* has been made for them.

51,889. *Sir Henry Lawrence*: Your main point is that the Government of Bombay did not give sufficient attention to the interests of the agriculturists as against the interests of the city dweller?—Yes; from these concrete instances.

51,890. You do not make that point on behalf of the Indian merchants?—No.

51,891. You gave us your views on the use of irrigation roads for the benefit of the cultivator. Have you put those views before the Road Board which came into existence last year?—No.

51,892. It is an important matter that might be discussed by the Road Board?—The Irrigation Department are the masters of their roads; at least that is what they tell me. They say, "It is our road, and no one else has anything to say about it." I have not moved in that direction, because all that requires time, money and energy. If I were to take up all these individual cases, develop them, and go on creating opinion by propaganda, I think possibly I should not be able to do my own work at all.

51,893. An application to the Road Board to take this matter up might possibly be effective?—Such applications, with regard to various other matters, have been made without any result.

51,894. This Board is a new broom, and sometimes new brooms sweep clean?—Yes. I might try that. I said I would contribute 25 per cent. of the cost of the additional six miles to Malegaon; the Irrigation Engineer was enthusiastic about it, but still I think it will take fifteen months to get through all your Secretariat Departments, the Financial Department, Revenue Department, and so on.

51,895. *Sir Henry Lawrence*: In order that the cultivator should have the benefit of those roads thrown open to him, you advocate that tolls may be imposed on them to cover the extra cost?—Yes.

51,896. Do you advocate that in your personal capacity or as a representative of the Chamber?—In my personal capacity.

51,897. You do not know whether the Chamber will come behind you on that?—We have not yet discussed the point, but I will let you know their views.

51,898. It is a very important point, and if you can convert your Chamber to accept that, it may do a great deal for the improvement of roads?—I will put it before the Chamber.

51,899. You spoke of the negligence and slowness of the Bombay Government in taking up railway lines. You speak of this railway from Manmad to Satana. Will you tell me how the proposed railway would run, north or north-east of Manmad?—It would run north to Malegaon and then west to Satana.

51,900. Would it join on to the Tapti Valley Railway anywhere?—No. That is about 40 miles north.

51,901. You do not want to join up the G.I.P. Railway and the Tapti Valley Railway?—No, it is not necessary.

51,902. You say the Bombay Government has neglected railway construction?—During the last 30 years not a single trunk line has been constructed by the Bombay Government.

51,903. Has any progress been made with the railway from Kurduwadi to Pandharpur and Miraj?—That is a feeder line, and has been undertaken by the Barsi Light Railway Co. They have been paying 12 per cent. and earning 17 per cent. The Bombay Government cannot take any credit for that railway.

51,904. I do not quite understand the distinction. Because this is a paying railway, therefore Government can claim no credit for it?—Government have never pressed or worried about it; the railway company are doing it on their own account.

51,905. What is your point? That Government should only worry about railways that cannot pay?—Government should worry about railways whether they pay or not, but in this case I do not think the Bombay Government deserves any credit. However, that is a minor point.

51,906. You say that nothing is being done in the Bombay Presidency with regard to railway construction, that nothing is happening?—Something is happening as regards railway construction, and this is one of those things. But doing and happening are quite two different things. What I say is that the Bombay Government are not doing what they ought to do or enough of it.

51,907. I am quite prepared to agree to that, but here is something that is happening anyway?—Yes.

51,908. Mr. Mehta, I want to ask you a few questions. You spoke of the earning of women spinning *khaddar* as 15 to 19 rupees per annum. Are

there a sufficient number of cases which justify the striking of an average?—Yes, for women engaged in agricultural pursuits and having surplus time.

51,909. As a part time occupation?—Yes.

51,910. On that basis you advocate such spinning as an economic benefit?—Yes.

51,911. What about weaving? Is that to be done by these women?—No, but by men of the village just as they used to do under the old system.

51,912. By professional weavers?—Yes. Weaving cannot be done as a part time occupation.

51,913. You do not like the idea of cultivators taking to weaving?—No.

51,914. Owing to caste prejudices?—No, I do not think there are any caste prejudices now, but because the agriculturists are engaged in their own pursuits.

51,915. And they have no time for weaving?—Yes. In Kathiawar and Gujarat weaving is done by Dheds, the sweepers of the villages.

51,916. Then there is a caste prejudice against it?—I do not think so because weaving has been taken up even in some villages by Brahmins themselves, latterly of course. I do not think there is any caste prejudice against any people taking up weaving as a profession.

51,917. What about the Maratha Kunbi?—I do not know about him, but so far as I can say, up to this time we have received no such complaints, and we have not heard that weaving will not be taken up by anybody as a profession because of caste prejudices.

51,918. Have you come across any instance of Maratha Kunbis who weave?—I do not know of any.

51,919. Is this your personal view or the Chamber's that *khaddar* spinning is a sound economic policy?—That is the view of the Chamber that spinning should be considered as a subsidiary industry for agriculturists; but the statistics and other information which I have given with regard to spinning are mine.

51,920. *Sir Thomas Middleton*: Mr. Walchand Hirachand, you refer to short courses taught in Manjri. How many of your workmen were sent to those courses?—The sugarcane man went there many times to take the small courses. My agricultural experience is only of three or four years. Last year I wanted to send two boys but at the last moment one could not go; the other boy went this year; as I said, we sent more than 30 men to the Exhibition. We knew a bit too late that the courses had started.

51,921. How long does that course last?—I think there are two courses, one is of 15 days with some practical work in addition.

51,922. Did you send your sugarcane worker to Manjri at your own expense?—Yes, I paid him his expenses and his pay.

51,923. It was your experience of the value of that course that led you to send boys there for further instruction?—Yes.

51,924. You yourself can testify to the value of such courses for your workers?—Yes.

51,925. Do you think that there is room for a considerable expansion of these short courses of instruction for adult workers?—Yes, there is.

51,926. *Dr. Hyder*: Mr. Mehta, on page 510 of your note you state that you had some difference of opinion with the Central Cotton Committee?—Yes. That was with regard to the money spent by the Central Cotton Committee for putting up the plant at Matunga. Our Committee thought that that money had better be saved for some other purpose.

51,927. What was the point of putting up that plant at Matunga?—For testing cotton for different purposes, spinning, weaving and they have spent about 2 to 4 lakhs of rupees.

51,928. You do not think that that is a legitimate object?—That was what we thought.

52,929. You do not think that experiment and research as regards the suitability of Indian cottons for spinning, etc., are desirable?—We did not think so. We thought that it was desirable that the methods followed in other countries might be adopted here with advantage and that therefore there was no necessity for putting up the plant in question at Matunga, especially because the levying of a cotton cess was implied.

51,930. Do you still adhere to that?—My Committee have not yet changed their view.

51,931. You have visited that plant?—My Committee members have.

51,932. They are still of the same opinion? No occasion has arisen to change that opinion?—That is so.

51,933. *Sir Henry Lawrence*: Do not they consider the work done there of any value?—There has been no further occasion for changing their opinion.

51,934. They held that opinion before the plant had been started?—Yes.

51,935. Its results have not been reviewed?—No.

51,936. *Dr. Hyder*: Mr. Walchand Hirachand, on page 511 you speak of economic agricultural holdings. What is your idea of an economic holding?—It will vary and vary considerably. It may be one thing in Konkan and another in Gujarat. It depends on local circumstances. For *jirayat* and *bagayat*, what would be applicable to the Konkan would not be applicable to the Deccan, and Sind will probably give you a different unit altogether.

51,937. It will have to vary?—Yes, considerably.

51,938. You make a statement that over a series of years those engaged in agriculture do not earn enough, that is to say, that agriculture is not profitable. Is that based on some data or on the circumstances of your particular farm?—The Committee did not know anything of my farm or the conditions on my farm.

51,939. That statement applies to Indian agriculture in general? Have you got any data for that?—I should think there is any amount of data. The general figure of the average income of the Indian population varies from Dadabhai Naoroji's Rs. 30 to Rs. 120 of Mr. Findlay Shirras, even if you take the maximum. I think 80 or 82 per cent of the population is entirely agricultural. Even if you take the average, which includes millionaires with annual incomes of lakhs of rupees, you get a very poor average and you cannot but come to the conclusion that the agriculturist is in a very poor way.

51,940. You are taking the estimates of other people but your Chamber have not gone into the figures themselves?—No, not as a Chamber.

51,941. There is one point in regard to the criminal action of the Central Government which I should like to clear up. Is it your idea that agriculture in the Bombay Presidency (I shall not speak of other parts of India) is carried on chiefly with the aid of hired labour: is that the rule?—No; what I was driving at is that money crops are regulated by sterling prices; I say that instead of getting Rs. 300 I get only Rs. 264, while on the other side my cost of production is not reduced. But the textile industry is not affected to the same extent as agriculture

because, in the case of that industry, about 60 per cent. of their cost of production is favourably affected by the appreciation of the rupee. In their case the price of cotton goes down, everything except labour goes down. In my case the cost of production, which consists mainly of labour has not gone down; the economist might not agree with that but that is my experience as a layman.

51,942. My point is this that one cannot fix the exchange, taking into account the circumstances of a particular firm only, and therefore I ask you whether in the Bombay Presidency agriculture is carried on chiefly with the aid of hired labour?—I would not say so with reference to the Deccan.

51,943. That is one point which is clear. Each cultivator carries on his agricultural pursuits with the help of his family?—That is so generally. I am not an economist, I am a business man; I have not studied economics; I base that on my practical experience. I say that I have lost Rs. 36 per *khandi* without getting a reduction in wages and that should affect every other agriculturist.

51,944. How many years experience have you?—Four years.

51,945. The price of cotton has fallen this year, has it not?—That does not change the situation. I maintain that I have not obtained any reduction in my cost of production of the cotton, although I am told by the economist that I would get it or that I have got it already. Some say that I may get a reduction, others say that I have already got it. But I say that I have not actually got it because, as I have just pointed out, instead of getting Rs. 300 I get only Rs. 264 which means a loss of Rs. 36; whereas had I got Rs. 300 on my money crops the results would have been much better.

51,946. But if the ratio had been fixed at one and fourpence, perhaps you might have had some trouble with your men working on your farm? —That is only imagination, guesswork.

51,947. But you do not see that those men who are finding their cost of living rising might make an application to you?—Let the difficulty arise and then we will face it.

51,948. So that you will wait until the difficulty arises and not act so as to ensure against its arising. With regard to another item, namely the long term obligations arising out of the indebtedness of the peasant, what is your idea of the length of time in connection with a loan?—I think I have told the Chairman that I have no views to offer on that point.

51,949. Is it your aim, or the aim of the Chamber to make every village a self-contained unit?—(*Mr. Mehta*): That is the opinion of the Chamber, with special reference to spinning as a subsidiary industry.

51,950. Your Chamber consists of merchants?—Yes.

51,951. Does it not occur to you that if every village was self-contained you would soon go out of business?—I do not think so.

51,952. There would be no need for the rest of the world to exist?—I do not think so.

51,953. What is this proper organization to which you are referring in connection with the hand-spinning cottage industry? What have you in mind?—The proper organization would be to induce men or women in every village who have some spare time at their disposal to apply this spare time to hand-spinning, and the products of this hand-spinning should be utilized for weaving. For this purpose you require some proper organization.

51,954. Would it be a Government agency?—It may be through Government agency, or through private agency.

51,955. Is there any programme for the construction of branch lines by District Boards in the Bombay Presidency?—(*Mr. Walchand Hirachand*): As far as I am aware there is no such programme.

51,956. *Sir Chunilal Mehta*: When you talk about vocational rural education, I suppose you only mean some kind of manual training in the schools, such as nature study and so on?—Yes, that is so.

51,957. You could not really teach farming as such?—No.

51,958. Have you seen the new rural bias schools?—No.

51,959. Did you see it at the Exhibition where the whole school was actually brought?—No.

51,960. Have you not heard about them?—Yes, I have heard about them, but I have not studied them.

51,961. Have you heard good reports about them?—I have heard of the existence of such schools, but I have not heard either good or bad reports about them.

51,962. These short courses that you speak of were taken only at Loni, were they not?—At Loni and Manjri as well.

51,963. Are there any such courses in the Agricultural College?—I do not know.

51,964. There are, and you might find them equally beneficial for your staff?—They are not well advertised or known to the public. It would not cost Government anything to send a press communiqué. We heard of that a little too late for our boys to be sent there.

51,965. The Government do not always advertise, do they?—I would not use the word advertise; I would say that they do not inform the public.

51,966. As regards fragmentation, would your Chamber welcome legislation by Government?—It depends on what that legislation is.

51,967. I mean to say, legislation can be introduced for the prevention of subdivisional fragmentations without really going against the Hindu and Mahommedan laws of inheritance. Would you welcome it in that case?—Yes.

51,968. It is a very pressing need, is it not?—Yes.

51,969. Why do you consider that the Bombay Government have been very slack with regard to encouraging railway construction when in point of fact it does not cost them a penny?—I suppose it is due to the want of energy or foresight or something like that; things have been going at a very slow pace.

51,970. Do you know how many schemes the Bombay Government have already put before the Government of India?—Putting up schemes does not help; you have got to keep on hammering at them. I will give you just one instance. Sholapur wanted an extension of metre gauge railway for over 30 years. It was obviously detrimental to the interests of the Great Indian Peninsula Railway because they would be losing revenue on nine miles; nevertheless Sholapur felt the need for a further extension of the railway line. For thirty years nothing came of their petitions until two years ago, when His Excellency the Governor paid a visit to the place, and the Municipality and citizens of that town approached the Governor and pressed upon His Excellency the need for a railway, with the result that in about 18 months the railway was constructed. You want a little personal pressure in these matters, and the Governor must have used this pressure with the Railway Board, with the happy result which I have just mentioned.

51,971. So that the Sholapur Hotgi line is another achievement of the Bombay Government?—That really had nothing to do with agriculture; it was quite another matter altogether. The Great Indian Peninsular Railway

did not want to have a metre gauge line there because it would have meant a loss of traffic on their line. What I wish to say is that there must be some further pressure put on the departments concerned. His Excellency the Governor said that before he left the Province he would see that Sholapur had a railway, the metre gauge extension into Sholapur, and he saw to it that Sholapur did get one in the end.

51,972. What further do you suggest that the Bombay Government should do?—Obviously, when all the other Provincial Governments are going apace with their railway construction work, there must be something wrong in this Presidency that the pace should be much slower than is the case in the other Provinces. For instance, the Punjab Government are getting a further addition of 1,500 miles of railway, and obviously they are doing something which the Bombay Government are not doing.

51,973. Are all these railways sanctioned for the Punjab paying propositions, do you know?—I do not happen to have here all those pink books of the Railway Board which deal with the figures, but there are many schemes which, although they are not paying, are still being taken in hand, because the Local Government have been pressing strongly for them. Take the case of Madras, for instance. Recently the Railway Member of Madras went to Delhi specially in connection with railway matters, and the Railway Board Members, Mr. Parsons and others, went down to Madras, where they sat together with the local officers and considered the demand for improving railway facilities. The Madras Government Member in charge said that he wanted the Railway Board to give his Province some new lines, and he pressed the point so energetically that his demand was conceded.

51,974. Could you give us any instance or instances to show where the Punjab Government were able to get schemes sanctioned which were not paying, and where the Government of India refused to take up any schemes in the Bombay Presidency even though they were paying?—I have cited one instance.

51,975. What I really want to know is whether you consider that, in the acceptance of schemes, preference should be given to paying lines?—Certainly.

51,976. If it happens that the schemes in Bombay do not pay and that the schemes elsewhere pay, what has the Bombay Government to do in that event?—I do not myself consider that the position is so bad in Bombay that there are no schemes which will pay, whereas in other Provinces they are every year constructing new schemes. I do not know what the position is in the Punjab because, as I say, I have not studied the Punjab schemes, but I have gone through the schemes which have not been given effect to here, and which I have mentioned.

51,977. What are the schemes in the Bombay Presidency which are paying, and what are the schemes which are not paying? Can you tell?—I have referred to this Manmad-Malegaon-Satana railway project. They say that this is not a paying proposition, and yet round about this tract there are three other railway lines which are not even served by irrigation, and these railways have proved successful. My analogy is that you have these other railways in the same locality and they are all paying handsomely; one is paying 8 per cent., another 12 per cent., and a third is paying 15 per cent. What more do you want? That is where I say the Bombay Government have not done as much as they ought to have done.

51,978. This is the only scheme that you have in mind which is a paying proposition and which the Government of Bombay have not pushed on?—I have not looked into the question whether there are others.

51,979. Do you know of any other scheme in the Bombay Presidency which is paying and which has not been taken up?—I have not looked into it from that point of view.

51,980. You do not know of others at present, but may be able to discover some?—Yes.

51,981. Take the case of the railway you mentioned just now, namely, the extension of the Billimoria-Kala-amba Railway to Nasik. How long ago did the Baroda Government suggest this extension?—I cannot give you a definite date, but I think it was not more than six or seven years ago. Even now they may be prepared to carry out that project provided the sanction is given. They were anxious to do it.

51,982. His Highness the Maharaja of Baroda wanted to extend this railway in connection with the projected development of Fort Salher as a hill station. I want also to tell you that the Bombay Government themselves were very much interested. Do you happen to know it?—But the result is not there.

51,983. I am not talking of results. Of course you are interested only in results. You seem to think that the Bombay Government neglected this line?—If the Bombay Government were interested, the Railway Board would have mentioned it.

51,984. The Bombay Government possess very valuable forests in that area?—My information is to the contrary, that the Government of Bombay do not consider that their timber traffic will pass through that railway.

51,985. There is this fact, that the Bombay Government possess very valuable forest in the Dangs, and they represented this to the Government of India. Do you know that?—How is it, then, that in the latest programme it is not mentioned? If the Bombay Government is pressing for it, why is it that there is no provision for even a survey, which will cost only Rs.10,000 or Rs.15,000? I know that the Bombay Government are pressing for some railway in Sind in connection with the Sukkur Barrage.

51,986. Do you know that the Great Indian Peninsular Railway refused to countenance this scheme?—Yes; that is what I have been referring to.

51,987. Do you know that this was particularly put before the Acworth Committee by the Bombay Government?—I do not know that.

51,988. Do you expect the Bombay Government to do much more than that?—Yes.

51,989. What do you want them to do?—If the Bombay Government were to write sufficiently strongly, I think they would get the railway. I have gone through the report of the Great Indian Peninsular Railway, and I have criticised it very fully, and I have passed on my criticisms to the Honourable Member in Charge. If the Bombay Government were to write, we might expect to have the railway within the next five years or less.

51,990. Has your Chamber made any representations about it to the Government of Bombay or India?—No.

51,991. Why should they not help the Government of Bombay?—If any representation from the Chamber would help the Bombay Government, the Chamber would always be willing to do so.

51,992. *Dr. Hyder*: Have not the representatives from Bombay in the Legislative Assembly helped you?—They have always been helping us. The question is whether representations from the Indian Merchants' Chamber would help the Government of Bombay. We are very glad to hear from Sir Chunilal that they do help the Government of Bombay.

51,993. *Sir Chunilal Mehta*: I am only saying that they would add to the strength of the representation of the Bombay Government?—Then we will put it before the Chamber.

51,994. You are not going to do anything better to increase the strength of the representation in the matter?—Yes; we have already criticised the

details of the report. We have gone through the figures of traffic given by the G.I.P. Railway and criticised them.

51,995. Coming to the question of roads in irrigated tracts, it is perfectly true that yourself and another member of your Chamber undertook to go in for large scale agriculture at the request of the then Minister; but was your difficulty in regard to roads brought to his notice?—No, not to his notice, because he suddenly ceased to be a Minister.

51,996. But there was another Minister; was it brought to his notice?—It was not, but I am afraid that it would not have been of any use.

51,997. Was it brought to the notice of the Member in charge of Irrigation?—Recently I had bitter complaints to make about certain matters, but the Superintending Engineer told me that the proper person to go to was the man on the spot, the Executive Engineer. I did go to him, and his reply was that he could not help me.

51,998. Do you mean to say that, if the Executive Engineer and the Superintending Engineer say "No," you are debarred from approaching the higher authorities?—No; I do not say so. I approached the Superintending Engineer; perhaps the matter went to the higher authorities, and my application was turned down.

51,999. I entirely agree with you that all these representations take time, and the ordinary agriculturist is not able to undertake all these steps. But I suggest that you can quite easily go to the higher authorities?—Personally, as a special case, I was given permission; the officer said "Mr. Walchand will be allowed to take his car over this road."

52,000. On a general question like this question of roads in irrigated tracts which are of great value to agriculturists, do you not think it will be worth while taking up the question to the highest authority?—Yes.

52,001. You informed the Chairman that you would like much more money to be spent on agricultural research, propaganda and demonstration, on co-operation and other allied activities?—I did not say anything about co-operation.

52,002. Would you not like to have more expenditure on that?—We have left it to experts on co-operation.

52,003. Would you like to have more expenditure on those activities?—I would.

52,004. Have you any scheme for financing the extra expenditure?—No; not as a Chamber. But speaking entirely personally, I do not mind if agriculture is taxed to finance such schemes.

52,005. Has your Chamber considered this?—It has not been put to the Chamber.

52,006. You are not then in a position to express any views on behalf of the Chamber in this matter?—I am not.

52,007. *Dr. Hyder*: Do you mean a tax on agricultural income or a cess on land revenue?—Any way. If research is going to do any good to agriculture, there may be a tax on agriculture; whether it is a cess on revenue or a tax on agricultural income does not matter; Government may take additional revenue from the agriculturists themselves. The Secretary suggests that it might be like the tea cess. In whatever form, that money should be got from agriculture. Of course, the agriculturists will say that they already pay land revenue, and a portion of that should return to them. But if the revenue is not sufficient, I personally do not mind if agriculturists are taxed further to meet the expenditure on research and other things.

52,008. *The Chairman*: What about a cess on agricultural produce exported?—Personally I am against any export duty.

52,009. *Sir Chunilal Mehta*: Mr. Mehta, you said something about the experiments by the Central Cotton Committee. Do you recollect that when the Chamber took this attitude the proposal also was that such experimental work could be done in mills, and several mills were willing to do so?—Yes.

52,010. Mr. Mehta, would you mind giving to the Commission more details about the scheme for hand spinning? Are you talking here of hand-spinning in any particular tract or Province, or are you talking about all India?—(*Mr. Mehta*): I am talking about all India.

52,011. Is there great scope for hand-spinning in the Bombay Presidency as such?—Yes, there is very great scope.

52,012. In what parts?—Especially in cotton districts, but generally in other districts also.

52,013. How would you do it in other districts?—Already non-official efforts are being made in the direction of sending out cotton slivers to non-cotton districts. These slivers are distributed to different women. In fact, in Madras, where Mr. Rajagopalachariar is working, some of the districts, so far as I know, are non-cotton districts, and yet he gets down slivers of cotton to those places, and 3,000 women are supplied regularly with cotton by this non-official agency.

52,014. Have you any experience of work done in this Presidency?—Yes, to some extent.

52,015. What part of the Presidency?—Gujarat.

52,016. Surat District?—No, Ahmedabad District.

52,017. What makes you say that the cultivator will not take to weaving?—I do not say that the cultivator will have any objection to take up weaving, but I say he will not take up weaving as a part-time occupation, so long as he has got his agricultural pursuit to attend to.

52,018. Why not? Have you any experience of that?—I have no personal experience, but I can see that from the different accounts we are receiving.

52,019. Is not the cultivator taking to hand-weaving in Bardoli?—He does, if he leaves off agriculture.

52,020. No; while he is engaged in agriculture; there are some months in the year when he has nothing to do, and then he takes up hand-weaving?—Some of them may do so.

52,021. *Sir Henry Lawrence*: What community do these Bardoli weavers belong to?—So far as I know, Patels, Kunbis, and even the Anavils, who are Brahmins.

52,022. *Sir Chunilal Mehta*: Have you examined whether a handloom weaver, whether he belongs to the professional handloom-weaving class or whether he is a cultivator prefers mill yarn or handspun yarn?—With regard to that, we were running several handloom sheds in the suburbs of Bombay, and there my experience was that they did prefer mill yarn, but if we pay them more, to some extent they will use handspun yarn also. Especially, if it is handspun yarn which is sufficiently systematised, that is, tied up in hanks like mill yarn, they will have no objection to use it.

52,023. Have you had handspun yarn and mill yarn tested for its evenness?—It is being tested in one or two places, especially in the Sabarmati Ashram.

52,024. Do you find any difference?—There may not be the same evenness in the handspun yarn as in mill yarn, but in regard to tensile strength the reports are that the handspun yarn has more of tensile strength.

52,025. What is more important for the weaver, the evenness or the tensile strength?—I am not a technical expert, but what I find is that want of evenness should not be a deterrent to the weavers.

52,026. It certainly is in a power loom?—Tensile strength is the main consideration there.

52,027. The strength in the weakest point of the thread is the most important point. That is why it breaks. What worries the weaver is the constant breakages?—What I say is, if the yarn is strong enough, then he will use either handspun or mill yarn; it will not matter much.

52,028. But the test which you have of its strength is not always the correct test. It is the strength in the weakest point in the thread that is most important to the weaver?—Yes.

52,029. From this experience of your own round about the suburbs of Bombay, in what proportion, roughly, would mill yarn of the same counts be superior to the handspun yarn?—You mean with regard to strength?

52,030. With regard to what the weaver fancies?—We cannot put it down at any percentage. It depends on the sort of feeling which the weaver has. For instance, in Bombay, there are 2,000 handloom weavers in Madanpura, and they are using mill yarn, because they are never habituated to handspun yarn. Nobody has made any efforts with regard to them, but wherever any efforts have been made (the Khadi Prathishtan of Calcutta are making huge efforts, they are having yarn to the extent of some lakhs of rupees) it has been found that the weavers will afterwards take to handspun yarn.

52,031. *Mr. Calvert*: Is not mill yarn cheaper?—Mill yarn is cheaper.

52,032. *Sir Chunilal Mehta*: If it is cheaper and better, how do you expect the handloom weaver to use handspun yarn?—Because *khaddar* also at present sells at a costlier rate than the mill cloth. So he will get his reward.

52,033. That will mean that *khaddar* will not be sold in enough quantities; there will be a limit?—This is because we are still at the beginning of the whole thing. It means a revolution. The whole thing was gone, and this is a revival. We expect that by the time we are fairly well established, *khaddar* will again be what it was; that is, it will be for the masses.

52,034. How many processes has the mill yarn to go through before it reaches the finished stage?—It has to go through several processes.

52,035. It has to pass through several machines and numbers of processes. How do you expect the simple handspun yarn to come up to such a highly finished level?—We have seen the results; the results are published. The counts of the handspun yarn are much more, the tensile strength is greater, and the beauty of the cloth also is much more than that of cloth from mill yarn. The reports have been published.

52,036. Does it not depend on the cotton?—Hundred and 110 counts is not usual with the mills.

52,037. Precisely. It depends on the cotton. When you are talking of 100 and 110 counts, you are no doubt referring to the Andhra yarn?—Yes.

52,038. That is spun from extraordinarily good cotton. You get very good cotton like Cambodia cotton there?—That is true, but even with regard to Bombay cotton, for instance, the Surat and Broach cotton, there are spinners who have spun up to 85 and 90 counts.

52,039. At very great cost?—At the cost of trouble.

52,040. The market price of that 80-counts yarn would be very much more than mill-made or imported yarn?—Ultimately, the *khaddar* also sells for much more. A *sari* of 100-counts yarn will sell at Rs.75 to Rs.80.

52,041. How many purchasers are there of such *saris* of 100 counts at that price?—In Hornby Road itself, you can see how many ladies are going in for foreign *saris*, and you will find, if the taste is changed, that these people will go for the *khaddar saris*.

52,042. At that cost?—At that cost, because English and other foreign *saris* are not selling at a lesser cost.

52,043. Are you aware of the efforts which Mr. Amritlal Thakkar made for three years in Kathiawar and in parts of Gujarat?—Yes.

52,044. He has given it up. His whole heart was in this work?—But the causes were different.

52,045. Do you know the details of his experiments?—Some of them.

52,046. You think that his success or failure cannot teach us very much? —I think so.

52,047. You require an organisation for propagating hand-spinning. What really do you wish us to do?—You can do it through co-operative societies, or you can start some other organisation. Personally, I would be for co-operative societies.

52,048. What is the co-operative society to do?—Supposing there is a co-operative society of weavers weaving handspun yarn, the society will first of all give the slivers; or they may give the cotton, because they would prefer to give raw cotton to the spinners for being ginned by themselves. They would collect all the yarn, they would pay to the spinners, and pass on the yarn to the weavers, and make provision for purchasing the *khaddar* for sale in the market.

52,049. But would you force a society to use handspun yarn only?—Yes, because otherwise you would not encourage handspun yarn, and as long as you do not do that the experiment will not succeed. Already the handlooms are successful. They supply one-third of our sartorial requirements. In the United Provinces and Bihar and Orissa the handloom industry has advanced to such an extent that it can compete with mill cloth. But we want to encourage handspun yarn also, in order to revive a subsidiary industry for the villages.

52,050. Are you aware of the difficulties through which the handloom weaver has to pass? I think it applies to the whole country, not especially to this Presidency. Are you aware of the difficulties with regard to buying of yarn, the sale of his cloth, the marketing conditions under which he works, the bad yarn which he uses, his addiction to drink? Has he not enough handicaps already that he should have this further handicap of using an inferior article?—We do not say there should be no co-operative societies even for handloom weavers using mill yarn. If you start co-operative societies for handspun yarn, then they need not clash with the societies using mill yarn. We do not say that you should kill out the mill-yarn weavers altogether.

52,051. You would not have any objection to encouraging handloom weaving, whether they use mill-spun yarn or handspun yarn?—No, I would not.

52,052. Has it not been suggested that handspinning only should be encouraged and the weaving of handspun yarn should be encouraged at the expense of the other? You do not hold that view?—No.

52,053. *The Raja of Parlakimedi*: Mr. Walchand Hirachand, on this farm of yours, what system do you adopt for engaging labourers?—(*Mr. Walchand Hirachand*): It is all departmental. There is no sub-letting. We pay them so much per day, or so much per month; to the bulk of them we pay so much per month.

52,054. They are all permanently paid labourers?—Yes.

52,055. Are they permanently engaged?—A portion of them are permanently engaged. A portion of them are required at particular seasons; when there is picking of cotton or sugarcane crushing, we want additional hands; those are seasonal labourers, and the rest are permanent.

52,056. How do you keep these permanent hands engaged in the off seasons?—For the cultivator growing crops under irrigation, there is employment throughout the year. With 700 acres under irrigation, there is employment throughout the year; there is no off season time at all.

52,057. But there is a certain amount of slack time between planting and harvesting?—Not much. With rotation of crops and a variety of crops being grown, when the planting of some crops is finished, possibly by that time something else comes up. Except for seasonal labour, the bulk of the labour is permanent, and we find permanent employment for them.

52,058. What crops do you grow on the irrigated area?—As I said, cotton and sugarcane, and I am now going in for fruit plantation, bananas, pomegranates, and guavas; and I am growing tobacco and chillies. These are the main crops that we have under irrigation.

52,059. Are your cotton and sugarcane the improved varieties suggested by the Agricultural Department?—Yes; they are the most modern. Although mine is a four-year farm and not a three-generation farm, and I have not the experience of three generations, the variety of *roseum* cotton which I grew got the first prize at the Agricultural Show in Poona last year. The sugarcane which I grew also stood somewhere near the first. With regard to cotton seed I find there is some difficulty. If I send the *kapas* to the nearest ginning factory, I do not get pure seed back. So I am putting up gins of my own, and I will be able to get the purest seed possible, of my own, on the spot.

52,060. You depend upon your own seed entirely, and do not get a fresh stock of seed after a certain period?—No. Are you referring to cotton?

52,060A. And sugarcane also?—Sometimes there is a new variety, in which case we get the Agricultural Department to advise us and to send us that seed, and we then keep it rotating or keep it up to scratch, as far as possible.

52,061. Then you take sufficient care in seed selection?—I think so, as far as we can do it.

52,062. Do these labourers of yours approach you for any relief from the *sowcars*, for temporary loans of money?—No, they are paid regularly; every fortnight the off-season men get their wages, and every month the monthly labourers draw their wages. There are, of course, instances of marriages or calamities or some extra expenditure, when they come and ask for small advances to be repaid in one, two or three instalments.

52,063. Free of interest?—Yes, entirely free.

52,064. A couple of months' pay in advance, I suppose?—Something of that sort. It depends on circumstances. If there is a calamity, or an accident, or illness or some such thing, or a marriage (though we do not encourage much expenditure on marriages), we give them facilities.

52,065. In that area, round about your farm, is agricultural indebtedness very excessive?—I have not gone into details, but I do not think so.

52,066. Are you encouraging any by-products out of agriculture, such as rope-making, &c.?—Fruit-canning I am thinking of. In fact, I have just concluded negotiations to take over the Premier Fruit Products Co. I did not want to take up fruit canning, but I had to, because, for want of transport, I had to bury my whole crop of tomatoes, a luxuriant crop of beautiful quality, quantity and yield, but because transport to my next market was difficult and it did not repay the cost of transport and packing, I buried the balance and I did not grow any more. I have now almost completed negotiations with the Premier Fruit Products Co. They have a graduate returned from America. Their plant will be put in at my place, and will tin such products as tomato soup, ketchup, sauce, mixed guava jellies.

52,067. Lemon juice preserved?—We have not yet thought of that, but these mixed jellies can successfully compete with Tasmanian and other foreign jellies. I am trying to put up a few gins, a small oil mill and a disintegrator for the purpose of improving the by-products.

52,068. Do you not grow oilseeds?—I grow groundnut and *til* seed to a small extent.

52,069. Do you decorticate yourself before marketing or do you sell undecorticated?—Till now groundnut has been done on a small scale only. But this year two small oil mills are being erected.

52,070. You do not find decorticated nuts better to sell?—All my attempts at oilseed growing have been very small. We did not go into details, but now, if and when I get my full water supply for my 700 acres, I will have to seriously consider that point.

52,071. Are you growing any fibre crop on your farm, such as hemp or jute?—Having no grazing facilities, we have to put in green manure. The difficulty in the first instance is that for green manure they charge us full irrigation water rates. They ought to encourage green manure where water is easy to get, they could do it, but they would not. Barring hemp for green manure, we have no fibre crop worth speaking of.

52,072. There are plants which can be grown without irrigation, yielding good fibre?—It depends on the rainfall. My rainfall is very poor. My soil is rather light and requires a large amount of water. Last year we had about 12 inches of rain. When I have got my 700 acres of irrigated land, why should I worry about the unirrigated land?

52,073. *Sir James MacKenna*: Is it the view of your Chamber that, preliminary to an advance of the agricultural industry, there should be a greater diffusion of vernacular education? Do you think that the time is ripe for the policy of compulsory education? Have your committee considered that point?—Yes, personally, I do think that the time is ripe for introducing compulsory education and it should also be made free.

52,074. That would entail a very great expense?—Yes.

52,075. I suppose you mean vernacular education?—Yes.

52,076. To what extent would you go as regards agricultural bias? To adoption of lessons so drawn up that in the course of learning to read or learning to write the examples should be taken from agricultural subjects and agricultural illustrations?—Yes.

52,077. Have the Chamber a representative on the Council?—Yes, Mr. Lalji Naranji is their representative in the Bombay Legislative Council and Sir Purshotamdas Thakurdas in the Legislative Assembly at Delhi.

52,078. *Mr. Calvert*: On this question of opening these canal bank roads to the public, is there not a legal difficulty in that, as they have been acquired for a specific public purpose, namely, for canals, they will have to be restored to the original owner if they are opened to the public?—I do not think so, because even then they would be employed for a public purpose.

52,079. Yes, but the Act requires that, if the land is not applied to the specific purpose for which it was acquired, it has to be restored to the original owner?—You can unmake the law, modify the original Act. That is only a technical difficulty.

52,080. On this question of railway expansion, the figures quoted for the Punjab are, I think, due to the fact that the Punjab Government has guaranteed the Railway Board against loss. There are two important points of policy. I understand that the Finance Member of the Bombay Government is sometimes perturbed, when he is trying to balance the budget. On the general question of raising fresh taxation in order to

provide funds for guaranteeing railway expansion, do you think Government will be justified in going so far?—Yes. Government will not, I think, guarantee against loss. What the Bombay Government should do, I think, is to say that for the first five or ten years (which I call the development years) they will guarantee 4½ per cent., and at the end of say 15 or 20 years they should be paid back their money. I believe that has been the intention of the Government's railway policy, and I think it should be continued.

52,081. Under the scheme the Local Government has to be prepared to pay up losses on a fixed percentage?—It is an advance; it is not a dead loss. They advance the money with a view to get it back after a certain number of years, whatever happens.

52,082. Do you think the Local Government will be justified in enhancing taxation for this specific purpose?—Certainly, I do, because ultimately it benefits the people directly and indirectly.

52,083. *Sir Chunilal Mehta*: Am I to understand that the Local Government will be justified in enhancing taxation for this special purpose?—Yes, but these views I am giving in my personal capacity, and if the Chamber's views are required, we will send them on to you.

52,084. *Mr. Calvert*: There is another important matter of policy coming up. It is happening that the guarantee required against loss for a new light railway may be actually less than the cost of maintaining a new metalled road, in which case would you prefer the railway or the new metalled road?—I would prefer the railway.

52,085. Your Chamber is very directly interested in increasing production, and that is linked up with the question of supplying pure seed. Could you suggest any means whereby the ordinary grain dealer could be induced to undertake the supply of pure seed? At present he sells mixed-up seed, very bad stuff sometimes?—The ordinary grain dealer supplies any sort of seed to agriculturists.

52,086. In the villages he sells very bad stuff indeed?—I think the present system is that the Agricultural Department have depots, and, in some cases, sufficiently well scattered about in the taluka places, which do this work, and I think if this is developed there will be no necessity of resorting to grain dealers for distribution of pure seed.

52,087. In this Presidency, I understand there are about 26,000 villages and therefore you would require 26,000 depots?—It is not necessary to have a depot in every village. One depot in a town can serve 15 to 20 villages round about. This system is already in vogue; there is a depot in each taluka town which supplies seed to the villages in that taluka.

52,088. Do you think the Department will be able to cover the entire ground?—I think so.

52,089. Have you any of the Bombay millowners on your Chamber?—What do you mean exactly?

52,090. Millowners or shareholders in mills?—All may be shareholders. There are about 20 millowners on our Chamber.

52,091. I wonder how they approve of your idea of making the village a self-contained unit?—But their views as regards cloth and spinning are already expressed in that note; they are not the personal views of the Secretary of the Chamber.

52,092. Mr. Mehta, can you tell me whether anything has been done to design a spinning wheel which will take the long staple American cotton; the ordinary *charkha* will not spin the long staple cotton?—Several types of spinning wheels have been tested, I think about three dozen types, but it is found by expert hand-spinners that no other spinning wheel is so

good as the old spinning wheel. No standard pattern will do because the circumferences are so very different in the different spinning wheels. Even with regard to the old spinning wheel, its diameter is different from the diameters of other types of wheels and sometimes it is different in the different parts of the same district, and still more different in the different parts of India. The number of flaps varies; sometimes they are 16, sometimes 8 and sometimes 12.

52,093. Do I understand that your Chamber is not prepared to help us out of this difficulty of the Hindu law of inheritance and fragmentations? —(*Mr. Walchand Hirachand*): We want you to place a scheme before us, and I hope my Chamber will do their best to help you.

52,094. It is a question on which we would rather not express an opinion, but non-official opinion would be very valuable?—It depends on what the Commission will propose.

52,095. The Hindu law of inheritance stands in the way of a solution of that problem?—But I think the Government of Bombay have been very seriously considering the matter just now.

52,096. *Mr. Kamat*: With regard to the idea of levying a small cess as an export duty on, say, wheat, in order to build up a sort of development fund for agriculture, would your Chamber be inclined to support such an idea?—(*Mr. Mehta*): I am afraid we cannot say without consulting our Committees first.

52,097. What is the trend of feeling in that respect?—I cannot tell. Naturally all the Commercial Chambers are opposed to any further taxation, in view of the limit which has already been reached.

52,098. I know that that is the case generally, but supposing, in the interest of agriculture, the proceeds of such a levy, the proceeds of such a development fund, were to be applied for improving the production of the agriculturist, would the merchants of your Chamber still be against such a measure?—Neither the President nor myself can say what will be the opinion of the Committee; we would have to consult that body first.

52,099. It has been suggested that the export of oil cakes which are used for manure is growing and therefore a restriction should be placed on the export of groundnut oil cakes or castor oil cakes. Would you give me your idea as to whether you favour restricting the free export of these oil cakes from India to foreign countries?—Our Committee have not considered that point.

52,100. As you have appeared on behalf of the Chamber I expect you to give me the general trend of feeling amongst them?—(*Mr. Walchand Hirachand*): How can we anticipate that?

52,101. That means you are not in possession of the general trend of their feelings in this matter?—(*Mr. Mehta*): The general feeling of the country may be against such a prohibition.

52,102. Talking about fragmentation, are you generally in favour of legislation?—Yes, provided it does not go against the Hindu and Mahommedan laws of inheritance.

52,103. If such a law were passed, it would be based on fixing what is called an economic unit of land for particular tracts, say 5 acres, below which according to hypothesis agriculture does not pay. The whole object of that would be to fix a unit of 5 or 10 acres below which agriculture does not pay. Now, if that were to be the basis, it follows that some people in the village who are getting perhaps less than 5 or 10 acres, say half an acre or 1½ acres will be displaced from agriculture; the effect will be to drive them to some other occupations. Would you accept

that?—(*Mr. Walchand Hirachand*): We would rather wait till that definite scheme for legislation came forward when we would, as a Chamber, give our opinion on it.

52,104. It is a general question; even for other Provinces where there is no legislation, fixing an economic unit and consolidating land on the basis of 5 acres as the minimum means that those who cannot get that minimum will have to take to other occupations?—That is obvious.

52,105. Therefore it is a general question; these others would have to go into industrial concerns such as factories, &c. Therefore I want to know whether you are prepared for that?—We have said that further industrialization of the country is necessary.

52,106. In other words, if there is regular consolidation throughout the country the present 70 per cent. of the population engaged in agriculture cannot remain in agriculture but, say, 10 or 20 per cent. would have to take to other industries?—Not necessarily; there might be intensive agriculture requiring more labour on the same basis, whereas the present method of agriculture is to sow the seed and to wait for the results. With these big holdings and more research, the same plot of land might require more men than are required to-day.

52,107. In other words, you will keep some pressure of population on the same land but do it intensively?—There might be some of that labour required for more intensive cultivation and more production on those particular places which require more men.

52,108. About this railway expansion question. you are concerned with railway works and you have a pretty long experience with regard to them. Would you kindly compile a statement showing how many feeder line schemes during the last 20 years have been started, say, by the Madras Government as against those started by the Bombay Government? It is no use simply comparing what has happened during the last three or four years. If you take up the question over a period of 20 years then we shall be able to compare the conditions in the two Provinces and judge for ourselves whether Bombay is lagging behind other Provinces or not?—In the first place, I must say that the Railway Board would be the proper authority whom the Commission might address for preparing a statement of the kind you want. In the second place instead of going into the sins or otherwise of other Governments, I maintain, that during the last 20 years, we have not added to our railway mileage except with regard to the case which I mentioned a little while ago.

52,109. But you make a comparison between this Province and other Provinces and you come to the conclusion that this Province is backward whereas other Provinces are going ahead?—Yes, I think I can give you the figures to prove that that is the case. A glance at the map which the Railway Board recently produced at the time of presenting the Budget would show at once that we are backward in this respect.

52,110. If you have the figures yourself, I think we might be able to verify for ourselves the statement that the Bombay Presidency is backward as compared with other Provinces. It is no use citing one single instance or even two instances and saying that the Bombay Government have not done anything during the last 3 or 4 years. That is not a proper comparison by any means?—I have not got the figures with me here.

52,111. You refer to the Hotgi and Sholapur junctions and you said that it took something like 30 years or so for the Sholapur people to get what they wanted?—What I meant to say was that the moment

the Bombay Government took up the matter seriously we got what we wanted. We had to shout for 30 long years, of course, before they came to our rescue.

52,112. That proves then that the Great Indian Peninsular Railway were successfully resisting the Bombay Government for a great many years, so that the Governor had to come on the scene and settle the matter?—The Bombay Government may have sent up the Municipal Committee's address or the people's representation to the Government of India and that may have produced the desired effect; at any rate, what I say is that the moment the Government of Bombay took up the matter seriously they got what they wanted.

52,113. Similarly you fear that until the Governor is pleased to visit Malegaon you will have to do without your railway, so that you would have to wait for 30 years as you did in the other case?—Possibly.

52,114. You said that the distribution of water on the canal should be handed over to the Agricultural Department?—Yes.

52,115. So far as complaints regarding petty corruption among the lower officers are concerned, do you think that there would be any improvement if the petty officials were supervised by the Agricultural Department?—I am not referring specifically to any complaints with regard to corruption, but what I do say is that the logical course would be for the Agricultural Department to distribute the water because they are in close touch with the agriculturists and know the actual requirements of the latter. Actually, very serious blunders have been committed by the Irrigation Department in stopping the supply of water at a time when they ought never to have done so.

52,116. In other words, the time when water should be given and the quantity to be given would be better determined by the Agricultural Department than by the Irrigation people?—Obviously.

52,117. If this is the only thing to be said against the Irrigation Department, then cannot the Irrigation Department dole out the water in co-operation with the Agricultural Department?—I think it is better for the appropriate department which is very intimately concerned with the agriculturist to handle this question.

52,118. *Dewan Bahadur Malji*: You talk, on page 511 of your note, about broadcasting by means of leaflets, magic lanterns, etc. I believe you can utilise the magic lantern and cinema shows for the purpose of educating these illiterate masses with advantage. You seem to think that lantern shows would be very effective, or rather more effective, in the case of those agriculturists who had a little education than in the case of illiterates?—Certainly.

52,119. With regard to the poverty of returns from agriculture, you have dealt with the question of credit there to show that the credit is more or less affected because of the poverty of return?—Yes.

52,120. Can you definitely assign a few reasons which have led to this state of affairs? Would you agree with me that the first reason in the case of dry cultivation is the uncertainty of the rains?—Yes.

52,121. Secondly, about the results in point of crops, would you agree that the consequent uncertainty of crops is another reason?—Rather the failure on the part of the Government, and consequently the Agricultural Department, to educate them sufficiently to be more sure of their yields.

52,122. The third reason is seasonal circumstances. The changes are sometimes so unexpected that the people are not ready to meet the requirements?—Yes, there again that means that information is not available quickly enough to show changes in weather forecasts, and in this also the Government are blameworthy.

52,123. Then, again, the question of reliance upon foreign markets in the case of commercial crops comes in the way?—Yes, the money crops.

52,124. A further reason would be the want of systematic grading of crops?—Yes.

52,125. Then comes the middleman's profits?—That might be to a very small extent, and then too in rare cases. I do not think there is much in middlemen's profits or exactions.

52,126. It is not a matter of frequent occurrence, I suppose?—It is not.

52,127. And then, cultivators selling cheap and buying dear; that is to say, when they have to sell their commodities they have to sell in the market for any price, if they are badly in need of funds?—That only applies to the considerably involved cultivator.

52,128. If there are no arrangements to sell their agricultural requirements at the nearest town, then they buy dear?—I do not follow you. Do you mean that it will be added to by the cost of transportation or want of facilities?

52,128A. Yes?—Then that is so.

52,129. Then the next would be the standardisation of weights and measures?—Yes.

52,130. Want of facilities in point of advances against ready goods. If they get advances against ready goods, they would save a lot; would they not?—Yes.

52,131. The absence of this facility also tells upon them?—Yes.

52,132. Then, absence of subsidiary industries?—Yes.

52,133. Do you agree that these are the principal difficulties in the way of the agriculturist?—Yes, with the exception of the one or two I have pointed out.

52,134. Supposing commercial crops were not encouraged, do you think the agriculturist will keep the areas, at present under those crops, under food crops?—Is it your question, as we are depending on world markets and consequently on world prices, whether we should restrict commercial crops?

52,134A. No. I am only asking whether more foodstuffs will be grown on areas where commercial crops are now grown if commercial crops are discouraged?—We are already producing what we can consume; so we have to produce commercial crops. We cannot discourage the growing of commercial crops and we should not do so.

52,135. If commercial crops are discouraged, the land at present under them would not be cultivated?—Possibly less of it would be cultivated.

52,136. As regards irrigation, your view is that the Agricultural Department, being more responsible, is the proper department to look after the proper supply of water from canals?—I do not say it is more responsible, but I say it is the proper department, as it handles all agricultural questions.

52,137. Do you find the Irrigation Department more military in the matter of discipline?—I am not referring to any such comparison. The Agricultural Department is the department that has specialised in the business, and they are the proper department to administer irrigation; instead of their doing it, another department does it.

52,138. Is your complaint against the dual agency?—At present the Agricultural Department have no say whatsoever in that matter.

52,139. Mr. Mehta, do you not think that if the question of looms and *charkas* is left to an organisation specially started or to village panchayats, it would be put on a sounder basis?—Sounder than what?

52,139A. Sounder than if it is left to the co-operative societies?—As I have explained, I do not want to restrict it to co-operative societies. The co-operative society would prove a good medium, but the village panchayat also would prove an equally good medium.

52,140. If it is done by the village panchayat, it will be more successful; they can arrange for the sale of hand-spun yarn and also of hand-woven cloth; they can also take annual stock of how things are going?—They could also interest the people of the village directly in the movement.

52,141. That would also encourage the sale of hand-woven cloth?—Yes.

52,142. Your idea is to see the village people spinning their own yarn and weaving their own cloth?—Yes.

52,143. Would you also advocate a course in spinning and weaving in the agricultural bias schools?—Yes.

52,144. Is your Chamber interested, to any extent, in the business of agriculture in the mofussil?—No.

52,145. Have you any representation on the Central Cotton Committee? —Yes; Sir Purshottamdas Thakurdas is representing us at present.

52,146. Your Chamber's views are communicated in that way to the Committee?—Yes.

(The witnesses withdrew.)

The Commission then adjourned and re-assembled in London on Tuesday, the 31st May, 1927.

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GLOSSARY.

ADAT ... ... Brokerage.
ADATYA OR ARHATIYA Á broker.
AKHADA ... ... An Indian gymnasium.
AMBADI ... ... Deccan hemp (*hibiscus cannabinus*).
AMLI ... ... A large evergreen tree (*tamarindus indica*).
ANANAS ... ... Pine apple (*ananas sativa*).
ANAVIL ... ... A caste of Brahmins found mostly in Gujarat.
ANNAWARI ... ... Valuation in term of annas (one anna being one-sixteenth of a rupee).

BABU ... ... A title of respect, sometimes of contempt.
BABUL ... ... The name of a tree (*acacia arabica*).
BAGAYAT ... ... Garden.
BAJRA OR BAJRI ... A small millet (*pennisetum typhoideum*).
BANDHARA ... ... A weir or embankment.
BANIA ... ... A Hindu trader who is generally also a money lender.
BARANI ... ... Watered by rain, not by irrigation.
BATAI ... ... Division of the crop between the cultivator and the landlord.
BAWTA... ... ... A millet (*eleusive conecaua*).
BHAGDARI ... ... Literally, holding a share; a kind of land tenure prevalent in parts of Gujarat, joint tenancy.
BHAJAN ... ... Prayer, religious song.
BHAR ... ... Literally, a load; a weight used in the case of cotton in Gujarat.
BHARNI ... ... The name of a constellation.
BIDI ... ... A cigarette.
BIGHA ... ... A measure of land; the standard or *pucca* bigha is 3,025 square yards or five-eighths of an acre.
BIR ... ... Pasturage, grass land.
BOJA ... ... A bundle or a load.
BOR, BORE ... ... Plum.
BORDI ... ... The Indian jujube (*zizyphus jujuba*).
BOSI ... ... Land irrigated from an inundation canal.
BUND ... ... A field embankment.
BUNDOBAST ... ... Arrangements.

CASHEWNUT ... ... The nut of a tree (*anacardium occidentale*) found especially in sandy places.
CHAKARIAT ... ... A term applied to land held revenue-free, on condition of performing some office or discharging some obligation.
CHARKA, CHARKHA ... A spinning wheel.
CHAROTAR ... ... Name of a tract in Gujarat.
CHATTAK ... ... A weight, one-sixteenth part of a *seer*.
CHIKU ... ... A fruit.
CHOLA ... ... Gram (*cicer arietinum*).
CHOWRA ... ... A place where the public in a village foregather.
CHUNAM ... ... Lime.

DADAM ... ... Pomegranate (*punica granum*).
DAK ... ... A post, a stage or station.
DALAL ... ... An agent or broker.
DAMDOPAT ... ... An ancient Hindu provision by which the total interest on a loan may not exceed the amount of the principal.
DESHI, DESI ... ... Native to the country, indigenous.
DEWASTHAN ... ... A temple.
DHAND... ... ... A tank.
DHED ... ... A man of a low caste, employed as a watchman and messenger in the village establishment. In some places, a scavenger.
DIWALI ... ... Commercial new year among Hindus.
DOKRA ... ... A bag of unpressed cotton of varying weight, generally five maunds.

GADINAD ... ... A tract in the Karnatak.
GAMTHAN ... ... Village site.
GANJA ... ... A narcotic derived from the unfertilised flowers of *cannabis sativa*.
GAOCHARAN ... ... Grazing land.
GAUCHAR ... ... Grazing land.
GAWAR... ... ... A pulse (*cyamopsis psoralioides*).
GHANCHI ... ... An oil maker or dealer.
GHANI ... ... An oil mill.
GHI, GHEE ... ... Clarified butter.
GRAM ... ... A village.
GUNTHA ... ... A land measure, one-fortieth of an acre.
GUR ... ... Unrefined Indian sugar, jaggery.

HAKIM ... ... A practitioner of the Muslim system of medicine.
HALI ... ... A bondsman, a labourer.
HAMALI ... ... Porterage charges.
HARI ... ... A peasant.
HIMAYAT ... ... Water assessment.
HUNDI ... ... A bill of exchange.

INAM ... ... Grant of land wholly or partially rent-free.
INAMDAR ... ... A holder of a wholly or partially rent-free land.
INAMDARI ... ... Held wholly or partially rent-free.

JAIN ... ... A follower of a sect amongst Hindus, which worships certain deified mortals.
JAMBU ... ... The black plum (*zyzygium jambolana*).
JATRA ... ... A pilgrimage.
JINJIVA ... ... A kind of grass.
JIRAYAT ... ... Arable land, not artificially irrigated.
JIV DAYA ... ... Literally, mercy on life: objection to killing anything.
JOSHI ... ... An astronomer.
JUAR ... ... The large millet (*sorghum vulgare*).
JUDI ... ... Dues payable by a holder of *inam* land to Government in lieu of land revenue.

KACHERI OR KATCHERI A court, an office.
KADBI ... ... Straw of *juar* (*sorghum vulgare*).
KALAMBANDI ... ... Held under articles of agreement.
KALLAR ... ... Alkaline.
KANTHAR ... ... A bush.
KAPAS ... ... Cotton with the seed still adhering (unginned).
KARANJA, KARANJI ... An evergreeen jungle tree (*pomgamia glabra*).
KARDI ... ... Safflower (*carthamus tinctorius*).
KATCHA OR KUTCHA ... Raw, immature, crude.
KHADDAR OR KHADI Coarse cloth.
KHALSA ... ... Land held immediately of government.
KHANDI ... ... A measure of weight and capacity which varies according to the commodity, and, in some places in the case of the same commodity; for cotton, 784 lb.
KHARABA ... ... Land unfit for cultivation.
KHARIF ... ... Season of crops sown before the commencement of the rains.
HUZUR... ... ... Office at headquarters.
KHATA... ... ... The holding of a *ryot*.
KHATEDAR ... ... A holder of land.
KHEDUT ... ... A cultivator.
KIARI (KYARI)... ... An embanked field, rice land.
KODALI ... ... A kind of hoe or spade used for digging or filling earth.
KODRA... ... ... A millet (*paspalum scrobiculatum*).
KOLI ... ... Name of a wild tribe, some of whom, in Gujarat, have settled on the plains and become cultivators.
KOPRA ... ... The kernel of the cocoanut sliced and dried.
KOS ... ... A large leather bucket used for drawing water from wells.
KULKARNI ... ... A hereditary village accountant.

MA BAP ... ... Literally father and mother; a protector.
MAG ... ... A kind of pulse (*phaseolus mungo*).
MAHAJAN ... ... A merchant.
MAHAR ... ... A low caste, members of which are generally inferior village servants.
MAHUDA ... ... A deciduous forest tree (*bassia latijolia*) whose dried flowers are eaten as food or distilled into liquor.
MAL ... ... Extended tract of bare stony land.
MALGUZAR ... ... Person paying revenue assessed on an estate or village, whether on his own behalf or as the representative of others.
MALKHAMB ... ... A vertical bar for gymnastic exercise.
MAMLATDAR ... ... Revenue officer in charge of a *taluka*.
MANBHAT ... ... A preacher.
MANDAL ... ... An association.
MANDI ... ... Bearish tendency in a market.
MANGALSUTRA ... A thread or silken string worn by the bride during the marriage celebration, and afterwards as long as her husband lives.
MATH ... ... The kidney bean (*phaseolus aconitifolius*).
MAUND... ... ... A measure of weight varying in value in different places.
MAVAL ... ... The tract lying along the valleys of the Sahyadri range of mountains to the west of India.
MELA ... ... A fair.
MOFUSSIL, MOFFASSAL The country as opposed to the town.
MOSAMBI ... ... Sweet lime.
MUKHI ... ... A headman.
MUNGARI ... ... An early variety of a crop.
MUNSIFF ... ... A civil judge.
MURUM ... ... Soft stone ordinarily used for road construction.

NAG ... ... A varying measure of weight for cotton.
NAKSHATRA ... ... A constellation of stars.
NALA, NULLAH ... A water-course.
NAMUNA ... ... Sample.
NARVA ... ... An undivided village held in coparcenary and managed by a few of the chief sharers.
NARVADARI ... ... A system of tenure in which a village is held in coparcenary.
NAZARANA ... ... A present, a fee.
NIM(B) ... ... A large forest tree (*azadinachta indica*).

PALLA ... ... A measure of capacity or weight, of varying capacity, usually 120 *sers*.
PANADE ... ... A water divine.
PANCHA, PANCHAYAT Lit. a committee of five; used to describe an association of any number of persons, instituted for objects of an administrative or judicial nature.
PAPAD ... ... A thin crisp cake, made of the flour of any kind of pulse.
PAPANAS ... ... Pommel.
PAT ... ... A small raised water-course for irrigating fields.
PATEL ... ... The headman of a village.
PATIDAR ... ... Literally, a hereditary cultivator, a caste of cultivators in Gujarat.
PATWARI ... ... A village accountant.
PERU ... ... Guava.
PHAWRA ... ... A kind of hoe or spade.
PINJAR... ... ... A cotton cleaner, one who extracts the seed, and prepares it for spinning.
PINJRAPOLE ... ... A refuge home for cattle.
PIPAL (PIMPAL) ... A sacred tree (*ficus religiosa*).
PRAGATHI ADHIKARI Development officer.
PUCCA ... ... Solid, firm.
PUNDIA ... ... A variety of thick sugarcane.

RAB	... Inspissated juice of the sugarcane.
RABARI ...	... A caste of cowherds or milkmen.
RABI	... Season of crops sown after the end of the rains, *i.e.*, in winter.
RAMIA	... Deep wells requiring large buckets for drawing water.
RAYAT (RYOT)...	... A cultivator, a peasant proprietor.
RYOTWARI ...	... The system of tenure under which the land is held by the cultivator direct from Government.
SALA	... A grass stack.
SALAMI... ...	... A fee levied as a quit-rent.
SALOTRI ...	... A veterinary assistant.
SANN	... Bombay hemp; a leguminous fibre crop (*crotalaria juncia*); also used as a green manure.
SARI	... A long cloth worn by Hindu women, wrapped round the body.
SARKAR ...	... Government.
SARKARI ...	... Pertaining to the supreme authority, the Government.
SARSAV ...	... Mustard seed.
SARUS	... Crane (bird).
SEVA	... Service.
SEV	... Vermicelli.
SHARAKATI ...	... A term applied to villages or estates, the revenues of which are shared by Government with others.
SHIKAR ...	... Hunting.
SLOKA	... A kind of verse.
SOWCAR ...	... A moneylender.
SUNDHIA ...	... A variety of fodder, *juar* (*sorghum vulgare*).
SURTI	... From Surat, a district in the Bombay Presidency.
SWADESHI ...	... From *swa* (own) and *desh* (country); indigenous, made in the country.
TACCAVI ...	... An advance made by Government to cultivators for agricultural purposes.
TAL	... A dam.
TALATI... ...	... A village accountant.
TALUKA ...	... A part of a district.
TALUKDAR ...	... The holder of an estate—usually comprising several villages.
TALUKDARI ...	... The tenure, office or estate of a talukdar.
TEJI	... Bullish tendency in a market.
TEMBHURNI ...	...
THAKARDA ...	... A tribe originally inhabiting the forests, some members of which are now cultivators in Gujarat.
TIL	... An oilseed (*sesamum indicum*).
TUR	... Pigeon pea (*cajanus indicus*).
UTTARA ...	... The winter solstice.
VAID	... A practitioner of the Hindu system of medicine.
WAL	... A twining herb (*dolichos lablab*).
YERINAD ...	... Tract of black soil in the Karnatak.
ZABARDASTI ...	... Violence, force, oppression.
ZAMINDARI ...	... For the big landholders; belonging to the big landholders.
ZILLAH... ...	... A district.

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